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National Veterinary Medical Association of Great Britain and Ireland.

FIFTY-SIXTH ANNUAL MEETING, GLASGOW, 1938.

Presidential Address

By

DONALD CAMPBELL, M.R.C.V.S.

RUTHERGLEN

On rising to submit his Presidential Address a President of the Association must always feel that this is the climax of his year of office. Whatever he set out to do, if it is not done now it will never be done by him. He feels that the plans and ambitions with which he started must be examined to see how they have withstood, or to what degree they have been distorted by, contact with the hard body of experience. A review so egotistical as that would not, however, be vastly interesting to his hearers, and what I propose is simply to follow established precedent and offer you some reflections on the events of the year.

So much has been said by myself, as well as by others, about the establishment and progress of the new Centralised Veterinary Service that I feel almost apologetic for introducing the subject again. But few happenings or none, in our time have aroused such interest in the profession or have been of such vital concern to us individually and as a community. Wherever veterinary surgeons have gathered together during the past year the new scheme has dominated the talk, as it must, I fear, dominate this address.

Looked at as a whole the scheme must be regarded as an effort on a national scale to bring under control and finally, perhaps, to stamp out those diseases of cattle which are a serious and continuous drain on the nation's resources. That is an aim which is bound to enlist the support of the veterinary profession, and I have no hesitation in declaring that it has that support. At the risk of wearying you with repetition I will remind you that the National Veterinary Medical Association was early in the field with proposals for the eradication of cattle disease, and if, in supporting the general principles of the present scheme, the Association was mindful also of the interests of the veterinary profession, it was only exercising a right which is by general consent accorded to every organisation vitally affected by the institution of new systems.

From time to time the *Veterinary Record* has reported with considerable fullness the course of the negotiations which have taken place between the Special Consultative Committee of the Association and the Ministry of Agriculture, and in the Annual Report contained in the Congress Handbook you will find an admirable brief summary of events. I feel absolved, therefore, from the need to give a detailed narrative of the consultations, the alarums and excursions, the explanations, the concords and discords, the arrangements and agreements, the understandings and misunderstandings, that have made up the rather thrilling career of the Consultative Committee. Although the representatives of the Association have not always been able to agree with the Ministry, and at times have felt bound to take a strong stand against them, I hope no one will make the mistake of regarding the Ministry as our opponents. Rather, I feel that they and we are jointly engaged on a difficult problem, which we view from different angles, each perhaps for that reason contributing to the other's better understanding of it.

During the long negotiations, mistakes were undoubtedly made. Looking back over it all, however, I feel justified in saying that if we

had to begin again with only the same knowledge that we started with, there would be very little difference in the course of the proceedings.

Early in the year the Council of the Association laid down certain principles, four in number, the fulfilment of which was regarded as essential to a satisfactory scheme. I claim to be as much an idealist as any man, and as anxious for the observance of general principles, but experience has shown me that the complete satisfaction of abstract principles is rarely attainable. Some compromise with actuality has nearly always to be admitted. With that proviso, I repeat now the declaration which I made in April that as far as is humanly possible the four cardinal principles of the Association have been met.

The scheme as a whole has to be considered by us from two aspects: First, its contribution to the public good, and second, its effect on the veterinary profession. Everyone will agree that the task which the Ministry have undertaken is a huge one, of a nature that makes immediately advantageous results impossible. The diseases to be tackled are among the strongest and most insidious foes that beset the agriculturist. To bring them under control, and if possible to wipe them out entirely must surely remove an obstacle to agricultural prosperity, and through agriculture, contribute to the communal welfare.

Before speaking briefly of the effect on ourselves I should like to say this, that the existence of animal disease is a challenge to the veterinary profession, a challenge which in the nature of things must be accepted. We cannot say "such and such a disease exists: let us leave it alone." We must attack it or be damned.

But let us return to the question of how the present campaign will affect the profession. No matter how carefully it might be planned, its inauguration could not fail to unsettle and disturb the professional organisation, and produce misgiving as to the future in the minds of many individuals. Nevertheless, in the long run it seems inevitable that the profession as a whole will benefit. Work is to be done, much work, that only the veterinary profession can do. We are just at the beginning of it. As it increases, I believe our profession will increase with it, in numbers, in influence, and in prosperity. Already, I am sure, substantial benefit has been felt in many parts of the country, but as I, myself, and doubtless, many others, anticipated, variations in the types of farming throughout the country have caused uneven distribution of the effects, and in many instances serious hardships have been experienced.

I do not consider that the duty of the Association is done when it has legislated for future prosperity, or for the present prosperity of even the great body of the profession. I cannot share the complacent view that individuals must be sacrificed to progress. To some extent at least we are our brothers' keepers. Since the settlement of the main principles of veterinary participation in the scheme, much time and devoted service have been given by the Consultative Committee towards rectifying cases of individual hardship which have occurred, and in this connection I wish to say that the representatives of the Ministry have shown the fullest sympathy and consideration.

While I am confident that ultimately good will accrue to the profession from this change, just at present it is difficult to gauge the situation, and still more difficult perhaps, to estimate the immediate future. The profession as a whole will benefit, but what of the individual? The person who feels least secure is, of course, the general practitioner. Nothing gave more widespread satisfaction than the adoption of the policy that practitioners were to be an essential part of the Centralised Service, and any apprehension they have regarding the future is largely due to a feeling that employment of practitioners is only a temporary measure adopted to carry the scheme along until there is a staff of whole-time officers sufficient to enable the Ministry to dispense with practitioners altogether. On the whole, I think, such a fear is groundless. While the Ministry, for reasons which I accept as valid, are unable to give a definite promise that practitioners working on a part-time basis will be a permanent feature of the services, their anticipation as stated to your representatives is that as the whole-time staff grows in size the work under the scheme will increase, and there will be no less need for practitioners, but perhaps even more than at present. The Association expects that every effort will be made to ensure the fulfilment of that anticipation.

The freedom of the stock owner to choose the veterinary surgeon who will carry out official duties in his herd is a principle which was adopted by the Council of this Association before the present organisation of the profession had been elaborated, and it remains an essential principle which will not lightly be yielded. It has never been intended that freedom of choice should be universal and uncontrolled. In an imperfect world some limitations and safeguards are necessary. But in what I expect will in course of time prove to be the most important division of the present scheme, namely, Panel B, the principle of free choice is very fully incorporated. I hope it will never be departed from, and indeed that cause will never be given to depart from it. My idea of a proper balance in administration is this;

Control to the extent that efficiency requires, and no more; freedom to the fullest extent that efficiency allows—and a little more. Efficiency is a most admirable attainment, but freedom is something that inspires poets to sing.

The recognition of certain privately owned veterinary laboratories for the purpose of examining milk and other samples was granted following upon representations made to the Ministry of Agriculture. Further developments of laboratory work arising out of the Agriculture Act will be carefully examined as they appear.

This scheme to combat animal disease provides opportunities to the veterinary profession greater, I believe, than ever existed before, and by the way in which it handles these opportunities the profession and its various branches will be judged. I am certain that the vast majority among us will render honest and worthy service in return for what they will regard as reasonable remuneration. If there are any who, in the prospect of financial gain may become somewhat forgetful of the full extent of their responsibilities, I trust they may read these words and reflect that failure to observe their obligations may bring not only discredit upon themselves, but injury to their fellows.

Leaving the Centralised Service, I should like now to refer to a few other matters which have engaged the attention of the Association during the year.

During its whole history there have been few things more exasperating to the profession than the fact that in England, while the medical officer of health and the sanitary inspector, by virtue of their appointments, were authorised to act as meat inspectors, the veterinary officer was not so authorised, and if his services, the services of the man with the essential qualifications, were required for the purpose he had first to be appointed as sanitary inspector.

The position was so palpably absurd that one would have thought it had only to be pointed out to have the anomaly removed. But one would have been wrong. Even this year when the introduction of a new Food and Drugs Bill presented the opportunity of making a change, it was found in the draft of the Bill, that the old and humiliating disability was still imposed on the veterinary profession.

What is even more astonishing is that when the Association protested and claimed equality for the veterinary surgeon in his own sphere, with the medical officer of health and the sanitary inspector, arguments were seriously advanced against it. However, the reasonableness of the Association's case, and the skill and pertinacity with which it was presented by Dr. Wooldridge and his colleagues, who represented the Association in this matter, finally brought victory. At last a veterinary officer as such can be a meat inspector without first having to be appointed sanitary inspector.

An event of outstanding importance during the year was the publication of a report by the Poultry Technical Committee in which were revealed the stupendous losses from disease among birds that are bringing the poultry industry to the verge of ruin. For those who have not read the Report I would put the position briefly in this way. With the sudden and rapid development of poultry farming which followed the War, and the influx to the business of large numbers of people with a little capital and no experience, chicks and hatching eggs were rushed on the market to satisfy the demand without regard to the stamina of the strains they were bred from, with the result that poultry all over the country succumbed to disease in appalling numbers. The losses from disease in England and Wales as computed by the Poultry Advisory Committee of this Association and quoted in the Report I have referred to, amount to no less than £4,000,000 a year. I don't know if that figure has the same staggering effect on those who may now be hearing it for the first time as it had on me, when I read it. It indicates that poultry disease is no trivial matter, but a national problem of the first importance, which no Government can ignore. Nor can the veterinary profession ignore it. Disease of animals is our province, the maintenance of animal health is also our province; no where are these two more closely co-related than they are among poultry. Plans are being made to combat poultry disease and to establish healthy stocks, and the Association, through its Poultry Advisory Committee and Special Consultative Committee is taking steps to obtain adequate recognition of the profession in any scheme which may emerge. It is taking steps also by urging and arranging for the institution of classes of instruction in poultry work to ensure that the profession in general will be equipped with that knowledge which is expected and required of it. We have many skilled workers in this field able and anxious to spread their knowledge to others. Most earnestly I ask that the opportunity here presented should be grasped, so that in any campaign for the establishment of healthy poultry flocks in this country the profession will be able, not only to obtain its rightful place, but to demonstrate its fitness for it by the value of the service given.

At one time the care of small animals was a minor and rather neglected branch of veterinary medicine and surgery. That is no longer the case. The dog, always the most thoroughly domesticated of all animals, has in the present century in his unassuming way, approached even nearer to the human race, until now he is

an accepted member of nearly every household. His fortunes are bound up with ours, and we willingly will have it so, recognising in return our duties towards him. Diseases of dogs, and of cats, now receive from the veterinary profession the serious and painstaking study which they deserve, with the result that diagnosis is becoming ever more accurate and treatment ever more refined and specialised. Now the owner of a dog or cat needing advice on its health, turns not to the breeder, or the gamekeeper or the knowledgeable man, but to the veterinary surgeon. There, I say, and there only, he gets the best advice and the best treatment obtainable. What I am now about to say refers chiefly, though not entirely, to small animals. Although veterinary surgeons work, as it is honourable to do, for payment, they have never been backward in giving their services at nominal fees, or none, to people who are unable to pay at the normal rate. Recognising that this class of service should be organised, groups of our members in all parts of the country, usually in conjunction with the Royal Society for the Prevention of Cruelty to Animals, have for long been operating local schemes of free treatment, with considerable success. I feel I am justified in saying that this Association approves of the principle of free advice and treatment being provided where necessary, and further that the arrangements for such free advice and treatment should not be left entirely to the enterprise and good will of local divisions and members of the Association, and branches of the Royal Society for the Prevention of Cruelty to Animals, but should be co-ordinated by agreement between the headquarters of the two bodies concerned. Your Organising Committee have been deeply engaged in consideration of the whole matter for a long time. It is one of extraordinary difficulty and complexity, but I am convinced that the spirit exists which will bring it before long to the stage when it can be considered jointly by the Royal Society for the Prevention of Cruelty to Animals and ourselves.

I have often been told that in this address I should not at any rate be handicapped by lack of material. That is true. It has been my privilege to occupy the Presidential Chair of the Association during a period of intense activity, and in my address I have been able only to refer to some of the outstanding features of the year. For any omissions or shortcomings I apologise.

I wish to pay tribute to my colleagues on the Council and committees, not only for their help and loyalty, but also for advice and criticism honestly given and thankfully received.

To Mr. Knight, the General Secretary, and Mr. Brown, the Editorial Representative, I also give my thanks.

If I mention Mr. Knight in particular, there is, of course, no invidious intention: it is merely that the greater part of my work has concerned his department. He has been ever helpful, ever resourceful, and always with the necessary document at hand when it was wanted. What more could a President ask?

And now the tide of this year's work is ebbing out its last. Our ship is for a time in port; but only to refit and refuel for further voyaging; because as I see it, there is no end to its voyaging. The log book has been laid before you, and I have made my report, telling you on what tides we have sailed and what course we have steered. The voyage has not been without hazard or heavy weather, and perhaps a plate here and there has been strained a little, but the rivets hold tight and no leak has been sprung. It is now almost time for me to collect my shore-going clothes and step down from the bridge where I have been proud to walk. But another master will step up, and after him another, and another, in perpetual succession. To all who follow me I give the heartfelt wish of "Calm sea and prosperous voyage."

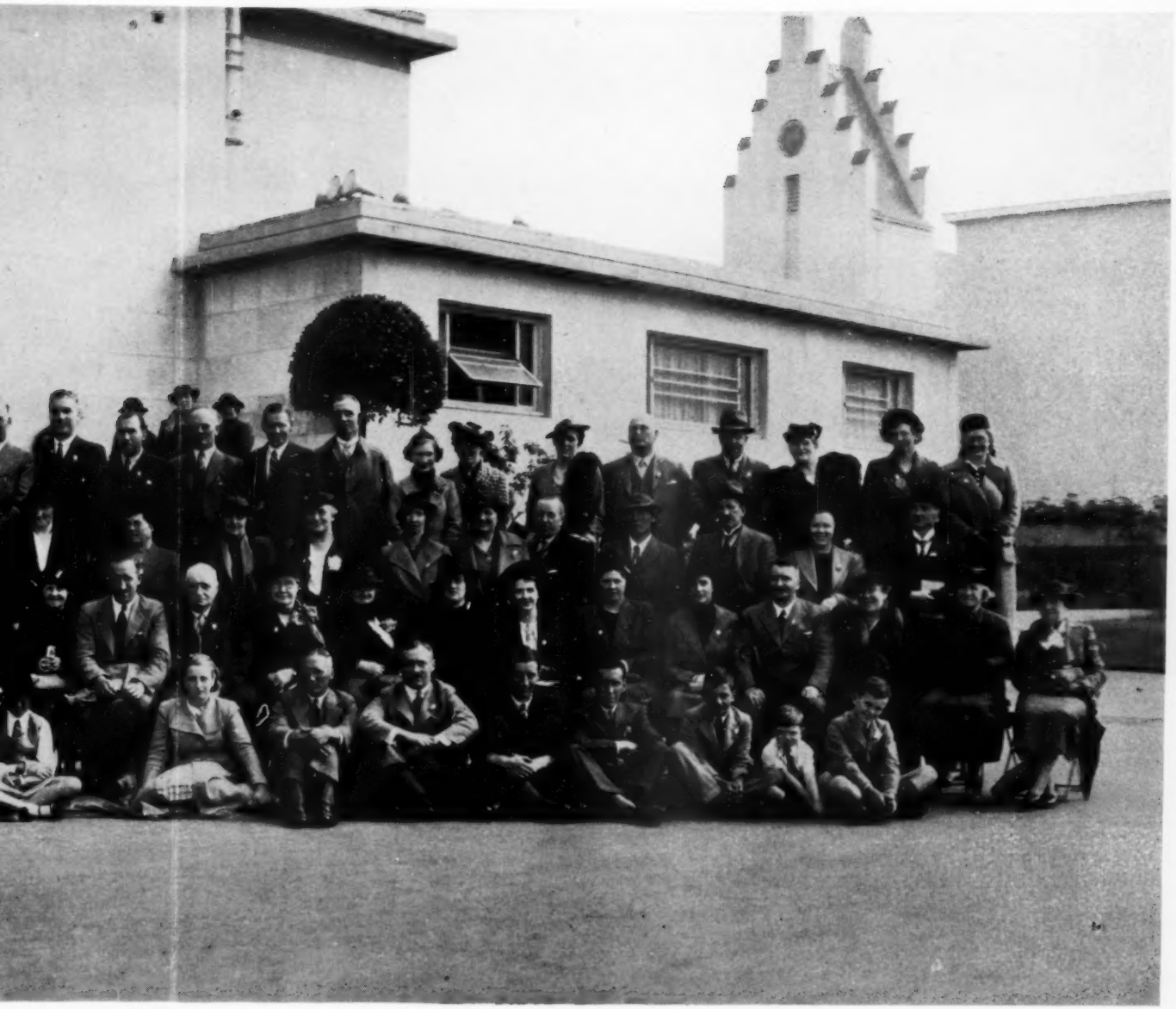
THE PRESIDENT (CAPTAIN DONALD CAMPBELL) WITH MAJOR D. S. RABAGLIATI

National Veterinary Medical Association of Great Britain

Medical Association of Great Britain and Ireland: Congress at Glasgow, September 5th-9th, 1938.

XUM

Ireland: Congress at Glasgow, September 5th-9th, 1938.



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Congress Attendance List

We give below the list of delegates, members and visitors who attended the Annual Congress of the Association at Glasgow.

Every effort has been made to render the list complete, but inasmuch as it would appear that many of those who took part omitted to sign the attendance book, there are, inevitably, some omissions.

Members

Captain Donald Campbell (President), Messrs. S. G. Abbott, H. B. Allan and Wm. Anderson, Major W. F. Aston, Messrs. D. S. Barbour and A. Barclay, Captain J. R. Barker, Captain A. Barr, Messrs. N. S. Barron and G. S. Beattie, Captain J. W. Beaumont, Messrs. E. F. Beckett, V. Boyle, A. D. J. Brennan, T. P. Briscoe, H. H. Brodie, J. B. Brooksby, D. Brown and D. S. Brown, Professor T. G. Browne, Mr. A. Brownlee, Professor J. B. Buxton, Mr. John Cameron, Dr. T. W. M. Cameron, Messrs. A. Campbell, D. W. Campbell, W. A. Campbell, C. W. Cartwright, A. J. Cattell, G. T. Cattell, A. W. Chalmers, A. S. Chapman, W. H. Chase, T. A. R. Chipperfield, J. A. R. Coates and J. Cochrane-Dyet, Professor J. F. Craig, Messrs. F. A. Crowhurst and D. Cumming, Captain O. V. Gunning, Professor T. Dalling, Messrs. G. O. Davies, H. F. Downie, P. Dunn, S. J. Edwards, R. C. U. Fisher, J. E. Fitzgerald, T. B. Fleming, J. M. Fletcher, A. C. Ford and K. A. Forker, Major A. N. Foster, Messrs. A. C. Fraser, W. Gardner, John Gibson and I. Gillespie, Major H. Gillmor, Mr. H. D. Gilmore, Major F. Leeds Gooch, Mr. F. A. Gordon, Dr. W. S. Gordon, Messrs. T. N. Gold, A. M. Graham, J. C. Grant, E. A. Gray and W. S. Gray, Lieut.-Colonel H. Greenfield, Captain O. V. Gunning, Messrs. T. C. Hall, A. S. Harris and S. T. Harriss, Captain J. C. Hill, Messrs. S. E. Hill and R. E. Hirtes, Major T. H. Hobson, Messrs. W. H. Horne, A. Houston and P. J. Howard, Captain G. Howie, Messrs. H. Tudor Hughes, W. A. Ireland and T. R. Jarvie, Captain J. Howard Jones, Mr. V. Berwyn Jones, Dr. L. Jordan, Mr. J. R. Kellett, Mrs. K. G. R. Kelly, Messrs. A. J. Kennedy, J. Kernohan, A. Kerr and R. H. Lambert, Captain W. W. Lang, Messrs. T. Y. Littler, G. H. Livesey, (President, R.C.V.S.), J. Lyon, W. B. McAleer, J. D. Macbeth, I. A. McClintock, J. McDougall, D. McFarlane, Jas. MacFarlane, John Macfarlane, M. R. MacFarlane, C. A. McGaughey, P. A. McGeady and J. H. McGhee, Major J. G. McGregor, Messrs. W. T. MacGregor, L. McIlhargey, J. W. McIntosh, A. B. MacIntyre, H. McIntyre and C. Mackenzie, Captain W. R. McKinna, Messrs. J. A. McKinnon, R. D. Mackintosh, J. D. McLaughlan, D. Maclean, A. M. K. McLeod, T. McNabb, A. M. McNiven, C. Macpherson, D. R. Macrae, F. Macrae, J. Martin, W. Martin and G. Mayall, Captain T. Menzies, Messrs. A. Messervy, N. G. Michie, M. H. W. Miller and W. A. Milligan, Miss H. J. Mitchell, Mr. R. Mitchell, Professor W. M. Mitchell, Dr. R. F. Montgomerie, Mr. R. R. Moodie, Captain S. J. Motton, Messrs. G. D. Munro, C. T. Murphy, W. Nairn, J. Nicholson, N. Nicolson, A. F. O'Dea and G. M. G. Oliver, Major G. E. Oxspring, Messrs. J. S. Paterson, A. Pottie, J. W. Procter, J. D. Rankin, T. Y. Ranson, A. Renfrew, G. G. Rennie, W. J. Rice, U. F. Richardson, W. L. Richardson, A. F. Ritchie and A. H. Robb, Professor W. Robb, Messrs. Chas. Roberts, A. Robertson, T. H. Robinson, W. J. B. Robson, R. F. Ross, G. A. Sangster, W. Scott, A. Shand and P. L. Shanks, Captain C. F. Shawcross, Mr. A. McK. Sievwright, Miss E. Sime, Captain R. Simpson, Messrs. A. M. Smith, R. M. Smith, R. S. Smyth and A. Spreull (Jun.), Miss M. L. Somervail, Messrs. A. H. Stark, A. P. Steele, J. Stevens, J. Stewart, Q. A. Stewart, W. Lyle Stewart, R. Swaby, C. Sweeney, A. W. Taylor, E. L. Taylor, J. F. Taylor, A. Thomson, C. Tracy, R. Turnbull, P. R. Turner, and Mr. A. C. Urquhart, Miss Olga Uvarov, Messrs. S. B. Vine, P. W. Walker, W. Walker, and W. Wardrop, Captain A. H. Watson, Messrs. R. J. P. Watson, W. R. Watson, W. Watt, C. Weighton and A. B. Weir, Professor G. W. Weir, Dr. A. W. Whitehouse, Messrs. T. Wilkinson, F. T. Williams and J. Ll. Williams, Miss P. L. Williams, Messrs. D. R. Wilson, H. M. Wilson, J. E. Wilson, T. W. Woodhead and W. Woods, Dr. W. R. Wooldridge, Messrs. A. Young and W. Jackson Young.

Delegates

Government of New Zealand.—Mr. C. S. M. Hopkirk and Lieut.-Colonel H. A. Reid, O.B.E., F.R.C.V.S., D.V.H.

Ministry of Health.—H. A. Raeburn, Esq., M.D., M.R.C.S., D.P.H.

Ministry of Agriculture and Fisheries.—Major D. S. Rabagliati, B.Sc., F.R.C.V.S., D.V.S.M.

Ministry of Agriculture, Eire.—Mr. J. D. Whitty, M.R.C.V.S.

Ministry of Agriculture, Northern Ireland.—J. McAllan, Esq., M.R.C.V.S., and H. G. Lamont, Esq., M.R.C.V.S.

County Councils:

Cheshire, Mr. Ian C. Mackay, M.B., D.P.H.; Cupar-Fife, Mr. J. C. Henderson; Durham, Councillor F. Hunt and Councillor G. A. Cameron; Stirling, Mr. A. Sillars, M.R.C.V.S.; Lanarkshire, Councillor Hugh Graham and

Councillor Jas. Russell; Glamorgan, County Alderman Joseph Dicks.

City and Town Councils:

Belfast, Alderman H. C. Midgley and Mr. A. McLean, M.R.C.V.S., D.V.H.; Birmingham, Major Brennan DeVine, M.C., F.R.C.V.S., D.V.S.M.; Cardiff, Mr. J. M. Hughes, M.R.C.V.S., D.V.S.M.; Dublin, Mr. P. F. Dolan, M.R.C.V.S., D.V.S.M.; Glasgow, Councillor McCalman; Hull, Mr. H. P. Lewis, M.R.C.V.S.; Leeds, Mr. H. H. Hague, Councillor S. Spencer, Alderman H. Schofield and Lieut.-Colonel J. A. Dixon, T.D., M.R.C.V.S.; London, Mr. L. B. A. Grace, M.R.C.V.S., and Mr. J. R. Hayhurst, M.R.C.V.S., D.V.S.M.; Manchester, Councillor J. Howard, Councillor C. Beaumand, Alderman C. H. Barrow, Mr. Gravill and Mr. W. K. Johnstone, M.R.C.V.S.; Newcastle-on-Tyne, Mr. H. Thornton, B.V.Sc., M.R.C.V.S., D.V.H.; Preston, Mr. R. Finch, M.R.C.V.S.; West Ham, Mr. H. E. Bywater, M.R.C.V.S.

Visitors

Mrs. H. B. Allan, Mrs. Barker, Mrs. Bickerton, Mrs. D. Brown, Miss J. R. Brown, Mrs. Browne, Dr. F. Bullock (Secretary, R.C.V.S.), Mrs. Bullock and Mr. W. Bullock, Mrs. Bywater, Mrs. and the Misses Campbell, Mrs. Cameron, Mrs. Cochrane-Dyet and sons, Mrs. Comer, Mrs. Cumming, Mrs. DeVine, Mrs. and Miss Dolan, Dr. H. Dryerre, Mrs. Finch, Mrs. Foster and sons, Mrs. Gardner, Mrs. Gibson, Mrs. and Miss Gilmore, Miss Gooch, Mrs. Gordon, Mrs. F. Gordon, Mrs. Grace, Mrs. Gravill, Mrs. Hague, Dr. C. M. Haring (University of California, Berkeley), Mrs. Haring, Major Max Henry (representing Australian Veterinary Association) and Miss Henry, Mrs. Hill, Mrs. Hobson, Mrs. Howard, Captain and Mrs. S. G. Howard, Mrs. Ireland and sons, Mrs. Jarvie, Mrs. Johnstone, Mrs. Kellett, Mr. A. C. Kirkpatrick and Dr. J. I. Quin (representing South African Veterinary Association), Mr. S. B. Littler, Mrs. and Miss Macfarlane, Mrs. MacFarlane, Mrs. MacGregor, Mrs. MacIntyre, Mrs. McLean, Mrs. McNabb, Mrs. Martin, Mrs. Milligan, Mrs. Montgomerie, Mrs. Moodie, Mr. J. W. Morrow, Mrs. Motton, Mrs. Nickinson, Mrs. Oliver, Mrs. Procter, Mrs. and Miss Rabagliati, Mrs. Richardson, Mrs. Roberts, Mrs. Robinson, Mrs. Sangster, Mrs. Scott, Mrs. Smyth, Mrs. Stewart, Mrs. and Miss Taylor, Mr. J. S. Thomas, Mr. A. Thomson, Dr. D. H. Udall, Cornell University, Mrs. Udall, Dr. Cassins Way (President-Elect, American Veterinary Association), Mrs. Way, Mrs. R. J. P. Watson, Mrs. Wilkinson, Mrs. Williams, Mrs. A. Young and Mrs. E. Young.

Total attendance recorded 348

N.V.M.A. Meeting Place Within the Exhibition

Official Opening of Congress

Civic Welcome at the Empire Exhibition, Glasgow

The Congress was opened in the Concert Hall at the Empire Exhibition, Bellahouston, Glasgow, on Monday morning, September 5th, 1938, when a Civic Welcome was extended to the members by Bailie Mrs. Jean Mann, Senior Magistrate of the City, in the unavoidable absence of the Rt. Hon. Sir John Stewart, Lord Provost of the City. Accompanying Bailie Mann on the platform were Captain Donald Campbell, M.R.C.V.S., the President of the Association; Major Brennan DeVine, President-Elect; Sir Cecil M. Weir, Convener of the Administration Committee of the Empire Exhibition; Captain W. Watt, Chairman of the Provisional Committee; Mr. Alex. Thomson, Hon. Local Secretary, and others.

THE PRESIDENT: It gives me great pleasure this morning to welcome here in your name Bailie Mann, representing the Corporation of Glasgow. (Applause.) I would ask Bailie Mann to address you.

BAILIE MRS. JEAN MANN: I am here to-day to give to the National Veterinary Medical Association a welcome on behalf of the Lord Provost, Magistrates and Corporation of Glasgow. I regret that the Lord Provost has not been able to come himself to-day, but you will readily understand that our beloved Queen Mary is visiting the Exhibition and the Lord Provost is very busy in connection with his duties there. We have always held your Association in very high esteem. We know the importance of the work of the Veterinary Association: it is allied to that of the Medical Association, but I do not think it gets in the mind of the public the importance that it deserves. The two are very closely allied, and scientific research and discovery do not wholly come from the one or the other but in all scientific experiments they have been allied. If we take the case of Louis Pasteur and his famous scientific discoveries, those of us who have read anything about him know that he started with sheep and not with men. I am not inferring, of course, that there is a very close alliance between sheep and men: sometimes there is a resemblance. (Laughter.) But there is no doubt of the close alliance and of the importance of such an alliance between the medical fraternity and your own. I do not quite understand why, when novelists are creating heroes, they generally choose a doctor and not a veterinarian. After all, the latter has very difficult work to perform. A doctor can make a diagnosis on the history of the patient. Sometimes it is very difficult for the doctors to compile a history because the patient just does not know exactly how to describe his or her symptoms or the symptoms preceding those he or she has at the moment, but the work of the veterinary surgeon must be much more complicated because he is dealing with animals that cannot talk at all, and, therefore, I think there is very much to be said for the veterinarian who has to find out for himself, in a world where speech is quite unknown, and has to bring forward his diagnosis on an animal that simply cannot talk at all.

THE EMPIRE EXHIBITION

I notice that you are here to-day to further the Objects of your Association, and these Objects are very worthy ones, finishing with the statement that you are here to promote a better understanding of the other fellow's point of view, and, in fact, you are here to create the family spirit. Well, in Glasgow, where you are just now, we have been trying to create the family spirit. The people responsible for the promotion of this very great enterprise allied with Glasgow Corporation and with the people of Glasgow I think have all combined to create in the grounds of Bellahouston a very great family spirit. (Hear, hear.) We are working together very harmoniously, and I am sure you will agree that there is something to be said for those who started and have carried on so successfully this great enterprise. We are glad that you came here, and we hope that you will enjoy your visit. I am certain that you will enjoy the Exhibition. Now, I am told that the speeches here are to be short. I am very often a delegate to conferences, and I understand the importance of confining the speeches to the shortest time possible. Again, on behalf of the Lord Provost, Magistrates and Corporation of Glasgow, I bid you welcome to the City. You will be received by us to-night in the Banqueting Hall of the City Chambers, and probably there again I will have an opportunity of seeing you all. (Loud applause.)

The PRESIDENT: I shall now ask Sir Cecil M. Weir, Chairman of the Administration Board of the Empire Exhibition of 1938, to speak to you.

SIR CECIL M. WEIR: I am very glad to come here this morning as representing the Exhibition Authorities, to join with the Senior Magistrate in extending a welcome to this very important Congress which has done us the honour of holding its meeting within the grounds of the Empire Exhibition. I agree with all that Mrs. Mann has said in welcoming you. I feel with her that this body can properly be counted on as one of the most important congresses that has been held in the Exhibition, and that is saying a great deal, because we have had, or shall have had before the Exhibition closes at the end of October, between 70 and 80 very important conferences in these halls. I have myself a

special interest in this Conference of the Veterinary Medical Association, because my own industry is the leather and hide business, and from the first moment when I entered it I have been familiar with such terms as foot-and-mouth disease, and also with the ravages of the warble fly, and I hope that one of the results of this Conference will be to do something really effective to dispose of that scourge, the warble fly, which is one of the most damaging things that we in the leather trade of this country know. I was in one of the rooms in which you are showing such interesting exhibits in connection with this Confreence and I was looking for some photographs that might be familiar to me. I did not see them, but I trust, nevertheless, that this very important subject will not be left out of your deliberations at this time. There is in this Exhibition very little in the way of animal life, apart from the bipeds, of whom we have a very considerable number going around, who are likely to interest you, but we have in the Milk Marketing Board exhibit a number of cows. These are the only representatives of the animal kingdom that are actually performing their functions within the Empire Exhibition. They are very fine examples of cows and are something for which you people can take considerable credit, because it is largely due to the research that has been carried out in the past by Associations such as yours and by individuals exercising their profession as you do, that the health of these animals has reached such a fine stage and that the products of these animals have become so good for the health of the community.

I join with Bailie Mann in extending a very hearty welcome to you here. I feel sure that you will enjoy the Exhibition. I feel sure that you will find, as Mrs. Mann has said, that in Glasgow we have developed, during the past two years in particular, while we have been preparing this Exhibition, something quite unique in family spirit. We have a community in Glasgow who have been working hand in hand and shoulder to shoulder to produce an enterprise in the form of an Exhibition, which, we hope and believe, represents the finest that has yet been done in the way of Exhibitions. It is natural for us to hold that view. I have been happy to observe that the great bulk of the visitors who have come here have spent a day or two in the Exhibition—and it is no use for any of you to expect to see this Exhibition unless you are able to devote a certain amount of time to it; the number of exhibits is so great and the diversity of the exhibits is so extensive that it is necessary for people to spend more than a few hours, if they are to carry away with them any real idea of what the Exhibition represents.

One thing it has shown, as the Senior Magistrate has stated, is that Glasgow can work together to produce a great enterprise, and that the people of Glasgow are firmly behind it and are firmly with it in every shape and form.

You are going to have the privilege, and it is a very great privilege, during your Conference, of witnessing two visits by Queen Mary. She is going to be here this morning shortly after 11 o'clock, and, therefore, had your Conference been going on, then I should have been obliged to excuse myself and leave you in order to be present when she arrives, but I think it is one of the most gratifying features of the Exhibition, and it is certainly one that has been highly appreciated in this City of Glasgow, that every member of the Royal Family has felt that the Exhibition is important enough and interesting enough to be worthy of a visit from them, and not only have they come here but, like other less distinguished but nevertheless distinguished visitors who have been here, in practically every case it has been the wish of our visitors after they have arrived to stay longer than they originally intended to do; and a better compliment than that would be difficult to get. It is a very high tribute to the Royal Family in this country that they take so great an interest in the enterprises of the people, and I am glad that your visit should coincide with one of the greatest and most important of the Royal Visits that we shall have had.

I extend to you on behalf of the Exhibition Authorities, on behalf of my President, the Right Honourable the Earl of Elgin, who would like to have been here this morning—he knows something about veterinary matters and is a great stock breeder, as you will know—and on behalf of the Management of the Exhibition a very hearty welcome to Glasgow. (Loud applause.)

The President: I am sure I shall only be fulfilling your wishes if I offer the thanks of the Association in the warmest possible terms to Bailie Mann and to Sir Cecil Weir for the kind way in which they have received us this morning. Both Bailie Mann and Sir Cecil Weir have spoken about the family spirit and the fostering of that spirit. It is my feeling in regard to this Association that within our ranks the family spirit exists and is strongly developed—that we are a great fellowship. With every year the size and importance of the Association increase and at the same time the welding together of our members in fellowship intensifies and becomes stronger. In regard to the Congress of this year, it has occurred to me many times that it must be a unique circumstance to have our Congress held in a city where at the same time a great Empire Exhibition is being held: not only at the same time but actually within the walls of that Exhibition. The existence and the success of the Exhibition show that the same family spirit prevails throughout our Empire. I am not sure whether or not it is also

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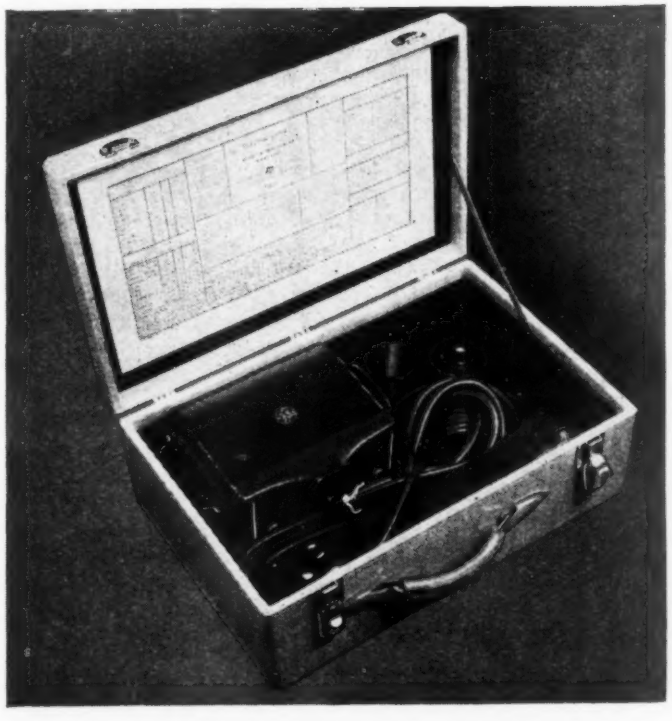

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unique for us to have our Congress officially opened by a lady. (Applause.) But whether or not that is the case I am sure that never in our history has it been opened with more graciousness and understanding than this morning. (Applause.) Bailie Mann and Sir Cecil Weir, on behalf of the Association, I thank you for your presence this morning and for your kind words to us, and I ask the members attending the Congress to signify their thanks and appreciation in the usual way. (Loud applause.)

Bailie Mrs. Mann: Sir Cecil Weir is a very busy man. It has often been said that if you want things done you should go to someone who is exceedingly busy and you will get them done, and I, for one, simply do not understand how he manages to conduct his own business and to be, as he is, the life and soul of this Exhibition. It is a wonder to me every time I look at him. He always seems to be there, wherever you go. As for me, I am delighted to have had the honour of opening your Conference, because I am very interested in medical and allied subjects, and I do hope it will be very successful. We both appreciate your vote of thanks, and in closing, I want to say that I hope everyone of you will come to the Civic Reception to-night. Even if you do not dance, we provide for you a nice Concert Room, and if you do not like a concert, there is a room where you can play cards. I am sure you will all thoroughly enjoy yourselves, and I merely want to ensure that everybody will come to the Civic Reception to-night. Now, on behalf of Sir Cecil Weir and myself, I thank you most heartily for your reception of us this morning. (Loud applause.)

The President thanked the members for their attendance at the Civic Welcome.

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Congress Meeting of Council, N.V.M.A.

A meeting of the Council of the Association was held at the Glasgow Veterinary College, 83, Buccleuch Street, Glasgow, on Tuesday afternoon, September 6th, 1938.

The President (Captain Donald Campbell) occupied the Chair and there were also present Captain J. R. Barker, Messrs. E. F. Beckett and D. Brown, Professor J. B. Buxton, Messrs. H. E. Bywater and T. A. R. Chipperfield, Professor J. F. Craig, Major Brennan DeVine, Messrs. J. Fox, Geo. Howie and J. McAllan, Major J. Gillray McGregor, Messrs. J. W. McIntosh and A. McLean, Professor W. M. Mitchell, Captain S. J. Motton, Mr. W. Nairn, Major D. S. Rabagliati, Messrs. Alex. Robertson, Geo. A. Sangster and Alex. Thomson, Dr. A. W. Whitehouse, Mr. T. Wilkinson and Dr. W. R. Wooldridge.

Apologies for absence were received from Mr. W. P. Blount, Mr. H. W. Steele Bodger, Professor G. F. Boddie, Mr. H. W. Dawes, Mr. C. W. Elam, Mr. Arthur Gofton, Captain J. R. Hewer, Sir Frederick Hobday, Major Hamilton Kirk, Mr. G. P. Male, Professor W. C. Miller, Major A. B. Mattinson, Major R. H. H. Over, Mr. J. W. Pritchard, Lieut.-Colonel P. J. Simpson, and Mr. H. P. Standley, Senr.

The minutes of the last meeting of Council, having been published in the *Veterinary Record*, were taken as read, confirmed and signed.

Dalrymple-Champney's Prize.—Arising from the minutes, a letter was read from Dr. F. C. Minett, expressing gratification at the award to him of the Dalrymple-Champney's Prize for 1938, but regretting his inability to be at the Congress in Glasgow, when it had been suggested to him that the presentation should be made.

Correspondence.—(1) From Dr. A. Eichhorn, Chairman of the U.S. National Committee of the International Veterinary Congress, expressing on behalf of the members of the American Veterinary Medical Association who took part, their sincere and heartfelt thanks for the hospitality extended to them by the N.V.M.A. at the London Casino on July 22nd.

(2) From Sir Weldon Dalrymple-Champneys regretting that Lady Dalrymple-Champneys and himself were unable to accept the invitation to attend the Congress at Glasgow and sending their best wishes for its success.

(3) From the Hon. Secretary-Treasurer of the South African Veterinary Medical Association

intimating that Dr. P. J. du Toit and Dr. J. I. Quin had been asked to represent that Association at the Annual Congress of the N.V.M.A., and to convey the greetings of the South African Association to that meeting.

The PRESIDENT commented that he was sure that that message would be received by the Council with gratification. (Applause.)

Election of New Members.—The Secretary presented the following list of members of the profession who, having duly filled in the requisite forms of nomination and paid their subscriptions, applied for membership of the Association: A. J. Alexander, Chichester; D. Balls, Gloucester; Miss M. L. Bingham, Shepperton; John Birrell, Glasgow; K. E. Cabban, East Rudham; D. W. Campbell, Ballymena; P. R. Chivers, Bristol; A. T. Cowie, Haddington; M. E. Crawford, Carmarthen; J. A. Dall, Hove; P. W. Dean, Hildenborough; E. P. M. Drewett, Epsom; J. B. Edwards, Ringwood; K. G. D. Evans, Woking; Stewart Forrest, Glasgow; J. Francis, Reading; L. Gabriel, London; Jas. Geddes, Paisley; E. W. Goodall, Midhurst; W. S. Gray, Edinburgh; R. A. Green, Finchley; S. T. Harriss, Aberdeen; D. K. Hunt, Salisbury; H. Kieran, Liverpool; G. C. Knight, Surbiton; J. S. J. Lauder, Walsall; Miss R. Lawton, Windermere; J. A. Lee, Tamworth; D. M. Lockhart, Birkenhead; Miss M. E. Lochead, London; E. von Lustig-Lendva, London; R. Machin, Henley; H. E. T. Mason, Bishop's Stortford; R. Mitchell, Glasgow; Miss H. Neve, London; E. Nicholl, Horncastle; D. C. Penman, Glasgow; H. S. Purchase, Northern Rhodesia; Miss D. M. P. Roberts, Maidenhead; E. D. Rolbag, Palestine; D. L. Stewart, Millport; C. W. M. Walker, Whitchurch; A. N. Worden, East Barnet.

The PRESIDENT moved that the ladies and gentlemen whose names had been read be elected members of the Association.

The motion having been carried with acclamation, the Secretary informed the Council that the membership role now stood at 2,093, which was the highest figure yet attained. (Applause.)

ANNUAL REPORT AND BALANCE SHEET

The Annual Report for the year, 1937-38, and Revenue Account and Balance Sheet for the year ending December 31st, 1937, were approved for presentation to the Annual General Meeting.

ANNUAL MEETING, 1939

The venue for the Annual General Meeting of 1939 was considered. In this connection, invitations were received from Malvern, Harrogate, Great Yarmouth and Gorleston-on-Sea, Rhyl and Southsea.

After discussion, it was decided unanimously to recommend to the Annual Meeting that the 1939 meeting of the Association be held at Great Yarmouth and Gorleston-on-Sea.

Nomination of Officers

President.—The RETIRING PRESIDENT (Captain Donald Campbell) proposed Major Brennan DeVine for election as President of the Association for the year 1938-39. This was seconded by Mr. J. W. MCINTOSH, and it was unanimously resolved to recommend to the Annual General Meeting accordingly.

President-Elect.—On the proposition of the PRESIDENT, seconded by Mr. A. H. WATSON, the Council unanimously agreed to recommend that Mr. H. W. Steele Bodger be nominated as President-Elect.

Vice-Presidents.—It was resolved to recommend to the Annual General Meeting that the Vice-Presidents for the year 1938-39 be the Retiring President (Captain Donald Campbell) and the President-Elect (Mr. H. W. Steele Bodger).

Hon. Treasurer.—The Council reluctantly accepted the decision of Captain W. G. Wragg not to stand for re-election to the office of Hon. Treasurer and a resolution was passed recording the warmest appreciation of the valuable services rendered to the Association by Captain Wragg over so many years.

It was decided to recommend the election of Mr. H. E. Bywater as Hon. Treasurer for the ensuing year.

Hon. Secretary.—Captain J. R. Rider having intimated his inability to continue as Hon. Secretary, the Council accepted his decision with very much regret and a further resolution was passed by the Council recording its deep appreciation of the valuable services rendered by him in this capacity.

It was agreed that Dr. W. R. Wooldridge be nominated for election to this office for the year 1938-1939.

General Secretary.—On the proposition of the PRESIDENT, it was resolved to recommend that Mr. F. Knight be re-elected General Secretary for the ensuing year.

Auditors.—The Council unanimously resolved to recommend that Messrs. Fairbairn, Wingfield and Wykes be re-elected the Association's Auditors.

RE-APPOINTMENTS BY COUNCIL

Solicitors.—Messrs. Fowler, Langley and Wright were unanimously re-appointed the Association's Solicitors.

Editorial Representative.—On the proposition of the PRESIDENT, Mr. W. Brown was re-appointed as Editorial Representative.

There being no other business, the PRESIDENT declared the meeting closed.

Annual General Meeting

Major Brennan DeVine Elected President

The Fifty-sixth Annual General Meeting of the National Veterinary Medical Association of Great Britain and Ireland was held within the Concert Hall of the Empire Exhibition, Glasgow, on Wednesday, September 7th, 1938, at 12.15 p.m., the President, Captain Donald Campbell, M.R.C.V.S., presiding over a large attendance.

The list of those attending Congress will be found following the President's Address, published at the commencement of this issue. Following is the list of members who sent apologies for absence from the Annual General Meeting:—Dr. W. H. Andrews, Messrs. A. L. Bartholomew, H. P. Blount, H. S. Steele Bodger, Professor G. F. Boddie, Messrs. H. W. Dawes, C. W. Elam and A. B. Forsyth, Dr. I. A. Gallaway, Messrs. Arthur Gofton and F. T. Harvey, Captain J. R. Hewer, Mr. H. Raynor Hewetson, Sir Frederick Hobday, Mr. H. P. Hogben, Major Hamilton Kirk, Messrs. S. P. Male and G. C. Marginson, Professor Wm. C. Miller, Major-General Sir John Moore, Major R. H. H. Over, Messrs. W. W. Peggie and J. W. Pritchard, Lieut.-Colonel P. J. Simpson, Messrs. H. P. Standley, Senr., Henry Taylor, and Colonel G. K. Walker.

The SECRETARY read the notice convening the meeting.

The minutes of the last Annual General Meeting, having been published in the *Veterinary Record*, were held as read, approved, and signed by the President.

WELCOME TO FOREIGN AND OTHER DELEGATES

The PRESIDENT: On the present occasion, we have with us a number of visitors from foreign countries and from our own Dominions and Colonies. I wish on your behalf to extend to them the warmest possible welcome. We are very glad indeed to have them here. We have enjoyed their company. We hope that their visit has been to them as pleasant as it has been to us. We hope, also, to see all of them again as early as may be. To those visitors from overseas I extend this welcome. (Loud applause.)

The Secretary read a message from the American Veterinary Medical Association to the N.V.M.A., in the following terms: "Hearty greetings and good wishes for successful meeting." (Loud applause.)

The PRESIDENT: I knew, of course, you would be very glad to receive that message. Greetings in other ways have also been received from other Associations overseas. We entirely reciprocate all the good wishes which have been received. Now, in this connection, a resolution was put forward for my consideration and I thought I would be fulfilling your wishes if I accepted it and allowed it to come forward at this stage in our proceedings. I would ask Mr. Knight to read the terms of the resolution which will be moved by Mr. R. S. Smyth.

The SECRETARY: The resolution reads:—"We, the members of the National Veterinary Medical Association of Great Britain and Ireland, met together in Congress at Glasgow on September 7th, 1938, extend our hearty greetings to all Dominion and Colonial Associations affiliated with this Association and to all fellow members who have been unable to be present here with us. We desire to assure them of our fraternal interest in their welfare, and send to them our very best wishes for their prosperity and happiness."

Mr. R. S. SMYTH (Lincoln): I have great pleasure in formally moving that proposal, and I feel sure that as this is the largest gathering of the profession during the year, this is a very fitting occasion on which to send to our professional brethren abroad and in this country, especially those who have been unable to attend this Congress, our greetings, and to assure them of our interest in their welfare. (Loud applause.)

The PRESIDENT: The resolution has been moved. Is any member of the meeting prepared to second it?

Major DEVINE: I beg to second the resolution proposed by Mr. Smyth.

The PRESIDENT: The resolution having been moved and seconded, I feel that it is somewhat unnecessary on this occasion to ask for any amendment. Is it your wish that the resolution be adopted unanimously? (Aye!) Adopted unanimously.

PRESIDENTIAL ADDRESS

The PRESIDENT: The next item on the Agenda is the Presidential Address, and with your permission I shall now read it. [The President proceeded to deliver his Address from the Chair. It was received with enthusiasm, Mr. Campbell being accorded an ovation as he resumed his seat. The Presidential Address is printed at the commencement of this issue of the *Veterinary Record*.]

MEETING PLACE FOR 1939

The PRESIDENT: The next item on our Agenda is the selection of a meeting place for the Annual General Meeting in the year 1939. Invitations have been received from various Local Authorities. I would ask Mr. Knight to read to you the list of places to which the Association has been invited.

The SECRETARY: Invitations have been received from Malvern, Harrogate, Great Yarmouth and Gorleston-on-Sea, Rhyl and Southsea. After discussion yesterday, the

Council decided unanimously to recommend that the 1939 meeting of the Association be held at Great Yarmouth and Gorleston-on-Sea.

The President: You have heard the recommendation of the Council that next year's Congress be held at Great Yarmouth and Gorleston-on-Sea. It is, of course, for this meeting to decide. That is the recommendation of the Council, if perhaps some member of the meeting wishes to move that the next meeting of the Congress be held there.

Dr. W. R. Wooldridge: I wish to move the resolution that next year's Annual Meeting of the National Veterinary Medical Association be held at Yarmouth.

Mr. P. R. Turner (Suffolk): I beg to second that proposal. Being a member of the Eastern Counties Division, I may add that we had a Committee Meeting in Norwich a few days ago, and the President, knowing I was coming here, asked me if I would reiterate the welcome that they would give you there.

The President: It has been moved and seconded that next year's Congress be held at Great Yarmouth. Are there any other nominations? May I take it that there are no further proposals in regard to that? If so, then I put it to you that the Annual General Meeting and Congress of 1939 be held at Great Yarmouth and Gorleston-on-Sea. (Applause.) Agreed.

ELECTION OF PRESIDENT FOR 1938-39

The President: It is a recommendation from Council that Major DeVine should be elected President of the Association for next year. It gives me great pleasure indeed to propose the election of Major DeVine, of Birmingham, as President of this Association for the ensuing year. (Loud applause.) To put everything in order, would a member second the resolution?

Professor W. M. Mitchell (Edinburgh): I have pleasure in seconding that.

The President: Are there any other nominations, ladies and gentlemen, for the post of President? If not, then I put it to you that Major DeVine be elected President of the Association. (Applause.) I declare that carried.

Major DeVine: I have to thank you for kindly signifying your wish that I should be President of the National Veterinary Medical Association for the ensuing year. I thank you for having such confidence in me. We all know what a wonderful President we have got at the moment and how very successful he has been. They say it is very difficult to follow a good man and, that being so, I shall have great difficulty to try and keep up the standard which he has shown us. I hope, however, I will have the support of all members of the Association, irrespective of whatever branch of the profession they follow, and I shall do all I can to try and fulfil the duties which are laid upon the President. I thank you, ladies and gentlemen. (Applause.)

The President: In the Agenda it is indicated that there will now be an adjournment for ten minutes. As we are very considerably behind our time schedule, however, I think it would be most inadvisable to adjourn for any time at all, but as the part of the Agenda which follows is for members only, I might, without discourtesy, ask those who are not members to withdraw.

. . . . .

Meeting of Members

The President: The Annual Report and Balance Sheet have been published in the Congress Handbook, pages 26 to 49 inclusive. It is a recommendation from the Council, at their meeting held yesterday, that the Annual Report and Balance Sheet should be adopted by this Association, with one small addition at the end of the section headed "Centralisation of Public Veterinary Services," on page 42, which addition I will now ask the General Secretary to read.

The Secretary: The addition reads: "Throughout the year considerable help has been given to the Consultative Committee by the Committee responsible for the *Veterinary Record*."

The President: With that addition I move formally that the Annual Report and Balance Sheet as published in the Congress Handbook be received and adopted by this Annual General Meeting. Before I put that to you, the Auditors' docket has to be read.

The Secretary read the certificate of Messrs. Fairbairn, Wingfield and Wykes, C.A., the Auditors to the Association, in relation to the Balance Sheet of the Association for the past year.

The President: I now move the adoption of the Annual Report and Balance Sheet.

Mr. J. W. McIntosh (London): I have much pleasure in seconding that the Annual Report and Balance Sheet be adopted.

The President: I put it to you that the Annual Report and Balance Sheet be received and adopted. Those in favour? Carried.

ELECTION OF OTHER OFFICERS

Mr. Steele Bodger, President-Elect

The President: Perhaps I might be allowed to explain to you a little the position in regard to the next item on the Agenda, namely, the election of two Vice-Presidents, one of whom shall be the Immediate Past-President, and the other the President-Elect. In the case of the Immediate Past-President, since he automatically and unavoidably becomes Vice-President,

I am advised that his election to the post of Vice-President is unnecessary. As to the other Vice-President, who will now be elected, he is regarded as President-Elect of the Association; that is to say, he is eligible at the next Annual General Meeting for election to the post of President. I have very great pleasure indeed in moving that Mr. Steele Bodger be appointed Vice-President of the Association. Mr. Steele Bodger on this occasion has been unable to attend the Congress, although I have a telegram of good wishes from him, but I naturally consulted him on his willingness to accept nomination for this post and he assured me that he would accept nomination, and, if you elect him, would do the best he could to serve the Association. I propose that Mr. Steele Bodger be elected Vice-President of the Association. (Applause.)

Major DeVine: I have very great pleasure in seconding that.

The President: Are there any further nominations? If there are no further nominations, I put it to you that Mr. Steele Bodger be elected Vice-President. (Loud applause.)

Honorary Treasurer.—The Secretary: The recommendation of the Council reads as follows: "The Council reluctantly accepted the decision of Captain W. G. Wragg not to stand for re-election to the office of Honorary Treasurer, and a resolution was passed recording the warmest appreciation of the valuable services rendered to the Association by Captain Wragg over many years. It was decided to recommend the election of Mr. H. E. Bywater as Honorary Treasurer for the ensuing year." (Applause.)

The President: I feel that I could not go further with the proceedings without making reference to the great regret with which I heard, and with which I am sure you have all heard, of the resignation from the office of Captain Wragg. He has been a trusted and honoured servant of this Association for many years, and he has been a conspicuous figure at every Congress. We would certainly wish it to be put forward that we have all heard with regret of his resignation. I trust, and in this I feel, in addition, some considerable hope, that Captain Wragg may yet be able to return and assist us by his presence, and not only by his presence but in some active post in the Association. (Applause.) I now propose that Mr. H. E. Bywater be elected Honorary Treasurer of the Association. (Applause.)

Captain Watt: I have pleasure in seconding that.

The President: Are there any other nominations? If not, I put it to you that Mr. Bywater be elected Honorary Treasurer. (Applause.)

Honorary Secretary.—The President: Again I have to refer to the fact that Captain Rider, or reasons which render it impossible for him to do otherwise, has found it necessary to resign from the office of Honorary Secretary, which he also has held with distinction for a good many years. Captain Rider has done valuable work for the Association. He has been on many occasions during the past year of great help to myself. I myself feel that we have lost, for the time being, I hope—and I can assure you that also is Captain Rider's hope—the services of one whom we could well retain. I hope it will not be long until Captain Rider is back in active service among us. In the meantime, I move that Dr. W. R. Wooldridge be elected Honorary Secretary of the Association. (Applause.)

Major D. S. Rabagliati: I have very great pleasure in seconding that recommendation. I am sure that no one has done better and harder work for the Association in the last two or three years than Dr. Wooldridge. (Applause.)

The President: If there are no other nominations, I put it to you that Dr. Wooldridge be elected. ("Aye" and applause.)

General Secretary.—The President: We now come to the election of a General Secretary. The recommendation of the Council, which will be echoed by everyone here, is that Mr. Knight be elected General Secretary. (Loud applause.)

Auditors.—The President: The recommendation of the Council is that Messrs. Fairbairn, Wingfield and Wykes be elected Auditors to the Association. (Applause.) Do you agree, gentlemen? Thank you very much.

ELECTION OF HONORARY MEMBER

(Major F. L. Gooch)

The President: The election of an Honorary Member of this Association is an action which indicates that the Association desires to do honour to one who has been a distinguished and faithful servant of the Association. It is proposed that Major F. L. Gooch, J.P., F.R.C.V.S., should be elected an Honorary Member of the Association. (Applause.) For many years—ever since I started to attend the Congresses, and for a long time before that—I am assured that Major Gooch was a conspicuous and active figure at them. I understand that he attended the International Congress of Surgeons in London early in the 1880's—I believe in the year 1885. That goes a very long way back and I understand that was a very historic Congress attended by men whose names are historic in the veterinary profession. Major Gooch ever since then has been a very active member indeed of the Association, enthusiastic for the incorporation of the idea that we are not scattered individuals but one group. He has been a member of many Divisions of the Association. He was on the Council of the Victoria Veterinary Benevolent Fund. He was for many years an Examiner in Medicine to the Royal College

of Veterinary Surgeons. There are very few professional activities and interests that have not been furthered by Major Gooch in his own enthusiastic way. Therefore, I propose that Major F. L. Gooch, J.P., F.R.C.V.S., be elected an Honorary Member of this Association. (Loud applause.) I take it, gentlemen, that I may declare the motion carried. (Applause.) I have in my hands the Certificate of Membership, if Major Gooch is present. (To Major Gooch, on platform :) It gives me very great pleasure, Major Gooch, on behalf of the Association, to hand you this Certificate from the members of the Association. (Loud applause.)

Major F. L. Gooch : I can hardly express my thanks in words for the honour conferred on me by the Association to-day. It is with some regret that I cease to be an active member of the National Veterinary Medical Association. I feel that it makes one feel that he is " on the shelf " a little bit and that he is one of those of the past, but I can assure you that although an old man I am still active (applause), and I still have the profession at heart. I do not suppose there is anyone present here to-day who has ever seen a case of cattle plague in this country except myself, and when you realise that cattle plague infected this country in 1863-64, you will see that it is some time back when I entered the profession. The first duty I ever had was to superintend the burial of ten very valuable Shorthorn cows that had been slaughtered by my father because of cattle plague, whilst he went into adjoining premises and slaughtered other 18 beasts. I should also say that I am the oldest surgeon, not as regards age but in experience. In 1867, I performed my first operation as a veterinary surgeon ; not a qualified veterinary surgeon. I had to perform that operation because I was a lad with a small hand and a man with a large hand could not perform it. There is one thing I should like to have seen carried more into the profession, and that is the Fellowship degree. (Hear, hear.) It is falling, to a large extent, out of existence. I well remember going forward in 1886 with the late members, Professor Penberthy, John Malcolm and Nisbet, to sit that examination. I have been told several times that that examination is not much, but then we had to pass a very stringent scholastic examination besides passing a written examination in Latin and science, and it kept us up-to-date. When I went up to that examination, I told no one —not even my own father—that I was going to sit it. I said to myself " If I pass, let him know," and if I did not pass no one would know anything about it. (Laughter.)

In connection with the National Veterinary Medical Association, I have been associated with it from the commencement, when G. A. Banham was the Secretary, and I could write a history of the National Association almost from its inception. There are one or two amusing incidents that have taken place in its history. There was one that took place at the first Dublin Conference, when we went to the Glendaloch in ordinary jaunting cars from a place called Rathdrum. Going there one of the horses of the jaunting car in front of mine—containing the late James Blake and his wife—fell, and the driver of the jaunting car broke his collar bone. We made a collection when we arrived, and the President handed the driver the sum of £4 17s. 6d., and the driver said " Thank you, gentlemen, I would have the other one broke for the same amount." (Laughter.) I do not think it is necessary for me to say anything further, but I will make this one assertion, that no one can say I have been a drone that never worked. I have always been as active as my physical condition would allow me to be. I have always used my brains as far as I possibly could, and if there was anything I was able to do I have always been willing to do it and it was a joy to me. There are a great many people in our profession—and I am sorry to say it—who do not take the active interest that they should in the profession. There are some men who never attend even their Divisional meetings, and I think if we could induce others to join the National Association, until every member of the profession was a member of the " National," we should do well. (Applause.)

The President remarked in his address that I was a member of the Council of the Victoria Veterinary Benevolent Fund. I am also a member of the other, the National Veterinary Benevolent and Mutual Defence Society, and it is in connection with these two societies that I have been constrained to do what I could to look after the poor and the needy. Now, I think we can all do well there, and I should like to see every member of the profession a member of the Victoria Benevolent Fund and also a member of the National Veterinary Benevolent and Mutual Defence Society that meets in Manchester. I have, as President of that Society, had to take a very active part in it, and if you only knew the cases that come before the Council—urgent cases for the support of some of our brethren and, particularly of their wives and children—I am sure everyone of you would join the Society. It only means about sixpence a week to support both of these, and I do not think there is a member present or a member of the profession who could not set aside sixpence a week to be a member of both these Associations. Mr. President and gentlemen, I have very much pleasure in thanking you for the honour you have conferred upon me. (Loud applause.)

The President : No other matters have been referred by the Council to this meeting, and we come to Item 10 on the Agenda, any other

matters that may properly be considered at an Annual General Meeting. No notice of resolution has been given, but if there is any item which any member wishes to raise, it would be proper for him to bring it forward at this time.

Colonel J. A. Dixon (Leeds): Have I your permission, sir, to ask a question?

The President: Yes.

Colonel Dixon: I should be pleased to be allowed to take this opportunity, the only one possible to an ordinary member of the Association, to ask if it is the intention of this Association of ours to rest completely content with the so-called National Veterinary Service which we have at present before us? I think if a little consideration is given and comparison is made between the Scheme set forward by the Association and the one presented to-day, or recently presented and now in operation, it will be realised that the existing scheme falls far short of this Association's declared ideals and ideas, and I would ask, sir, for an assurance that the Association will keep before it the need for expansion of the existing service. The existing service, I maintain, can be regarded as only a very considerable expansion of the Ministry of Agriculture and Fisheries' activities, with their traditional attitude and regard for public health, and I maintain that it was public health matters which led to the advancement of this profession and which pointed out the need for a central veterinary service. It was consideration of the public health which gave rise to the County Veterinary Services and other Local Authority services which have now been destroyed, and I would suggest that it is essential that the Association keeps before it the need for the alliance of this Association with public health matters, and I would ask that no efforts shall be spared to insist upon the expansion of the present scheme until it embraces all those veterinary duties of a public character which were being so ably and so extensively carried out by the services which have now been destroyed. (Applause.)

The President: Thank you very much, Colonel Dixon, for what you have said. You will understand, of course, that in any matter of detail it is impossible for me here to commit the Association to any future action, but I can certainly give you this assurance, gentlemen, that the Consultative Committee of the Association is still in being and probably will remain in being. I am sure you will all accept my assurance that this Committee has examined in every aspect the various stages in the promulgation of the scheme which has produced the centralised Veterinary Service, and that it will continue in that course. As I said at the Council meeting of the Association in Edinburgh, the work of that Committee is not done. I cannot tell you when it will be done. It has been, if I may say so, a hard working and useful committee. I have very little doubt that it will continue in that course and will always bear in mind the interests of every section of the profession. At the present stage, it is impossible for me to give you more than that general assurance. I think you will take that from me. (Applause.) If there are no other matters to be brought forward, gentlemen, I now propose that the meeting be adjourned until Friday, September 9th, at 12.30 p.m. Thank you.

A Congress Stalwart: Major J. G. McGregor

The Council of the British Dairy Farmers' Association can look back on its record of the past 60 years with justifiable pride. Throughout that time it has worked diligently and intelligently for the improvement of British dairy breeds. By arranging classes which encouraged the utility side of stock, the Association has shown its appreciation of the fact that cattle owners require something more of their animals than good looks and long pedigrees.—*Farmers' Weekly.*

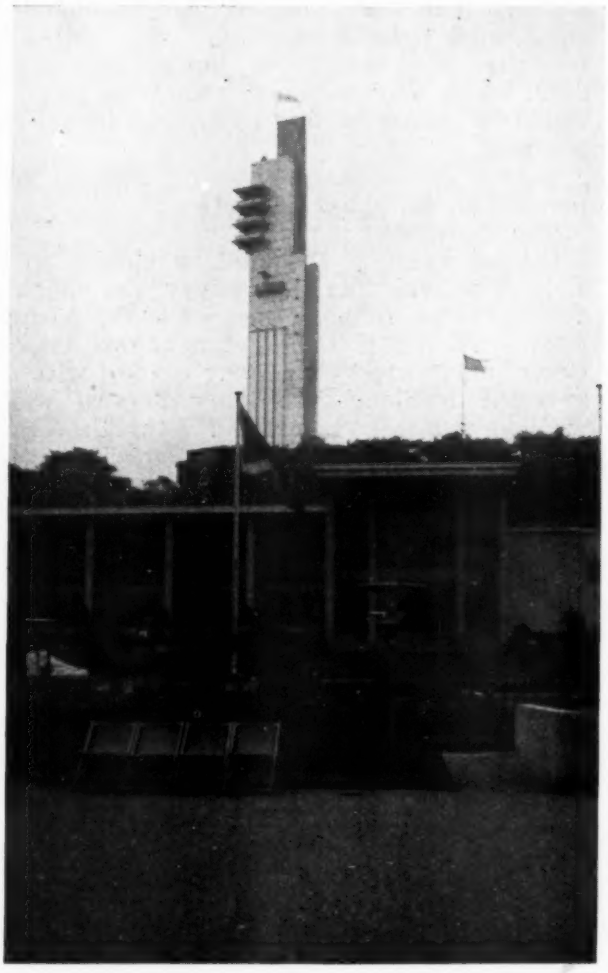
Social Events

The accounts of the many attractive social features of the Glasgow Congress which follow, in this section, will be found to provide ample justification for the view to which many members and their ladies have given expression since the Conference, that the 1938 meeting has never been surpassed in the very important matter of entertainment—" official " and otherwise.

The Empire Exhibition

The opportunity afforded, especially to the ladies, of spending every hour that might otherwise have been more or less idle in the magnificent Empire Exhibition in Bellahouston Park—in the Concert Hall of which the sessions were held—provided a never-failing resource of pleasure and profit which none, of course, came within measurable distance of exhausting during their stay. Imaginative writers are fond of telling us how cities of the future will look, and to join in the seemingly general daily exodus from Glasgow and, *via* the uninspiring Paisley Road West, to enter this architect's essay in modernist planning and structure, was in itself an exciting experience. Long days—not altogether tireless—could be and on the part of some were spent in and among the pavilions—great or small, white or softly coloured—admiring them and the broad avenues, lakes and lines of water dividing or linking the architectural masses. Few missed the opportunity of ascending the 300 feet Tower of Empire surmounting the hill, which itself rises 170 feet above the rest of the site, offering a wonderful panorama, with the exhibition buildings near at hand. Glasgow's sedater streets and Clyde shipyards in the middle distance, and the romantic Highlands beyond. Nor did they omit to return at night when to the colourful beauty of gardens, avenues and pavilions are added floodlighting and the changing effects of illuminated water in movement, creating in all a magical scene.

While, therefore, this is no place to enlarge on the wonders of the Exhibition, the glories of which have been made familiar to many more millions than those who have attended, tribute must be paid to the immense contribution the opportunity of visiting it in leisure and comfort made to the attractiveness and enjoyment of the Glasgow Congress. Space should be found, however, for a mention of one centre of special attraction to veterinary visitors in the Agriculture and Fisheries Pavilion, where the agricultural research exhibit illustrates in a very effective and " popular " way modern



Tait's Tower in the Exhibition Grounds

research in dairying, animal feeding and breeding, live stock disease control, and land and crop improvement. Three bays show how selective breeding and proper nutrition produces an animal which will develop quickly the best possible proportion of valuable cuts. Another section demonstrates how chemistry and bacteriology is improving the flavour of butter and cheese and preventing deterioration and contamination. Methods of producing richer and cleaner milk are also shown, while a further section indicates the efforts being made to achieve better egg production and illustrates modern methods of preserving eggs. A series of models reveals the application of chemistry to the problem of keeping the soil fertile.

The gracious and enthusiastic reception accorded the Association by the Civic Authorities of Glasgow will remain long and gratefully in our memories. It was, indeed, felt to be a great privilege to visit Glasgow while that great city is busy—how busy!—in exhibiting in little all the Empire, and to make or renew acquaintance with the hospitable land and people of Scotland.

THE SCOTTISH DIVISIONS "AT HOME"

The Scottish Divisions gave a typically hospitable and most enjoyable "send-off" to the fifty-sixth Annual Congress of the Association in the Banqueting Hall of the Central Hotel, Glasgow, on the evening of Sunday, September 4th, when Major J. G. MacGregor, President of the Scottish Branch, and Mrs. MacGregor, had the pleasure of receiving what must have represented a record number of guests for the initial stage of the "National" Conference.

Following participation in refreshments and the opportunity of renewing and making acquaintanceships with visitors to Congress from near and far, Major MacGregor welcomed the company on behalf of the Scottish Branch and Divisions in Scotland of the N.V.M.A. The Provisional Committee, he said, had drawn up a programme for the week which included something interesting for every member of the profession, while the ladies would find a wealth of interest and entertainment in the Empire Exhibition.

North of the Border they were very proud that this year they had a Scottish practitioner as president of the Association—(Hear, hear)—so they intended to make that Congress a memorable one, coming as it did at the end of a memorable year in the annals of the profession. For the greater enjoyment of all opportunity had been provided by land and sea to take advantage of the proximity of Glasgow to the features of unexcelled natural beauty of that part of Scotland.

The profession in Scotland felt very honoured that its invitation had been so widely accepted, and they were out to make the Association's stay in Scotland a very happy one. (Applause.)

Mr. W. Watt, Chairman of the Provisional Committee, on behalf of that committee, thanked the Scottish Divisions of the N.V.M.A.—The Scottish Metropolitan, the West of Scotland, the North of Scotland, the Ayrshire, and the Dumfries and Galloway—for their hospitality, adding that they were much indebted to the President of the Scottish Branch and Mrs. MacGregor for receiving the guests.

The evening passed all too rapidly in the happy process of "mixing," exchanging reminiscences not altogether disassociated with "shop" as far as the men were concerned, and altogether creating that atmosphere of universal good fellowship so characteristic of our congresses. A very delightful contribution to the success of the occasion was made by Mrs. J. Stewart, with a charming selection of beautifully rendered "songs of the four countries."

CIVIC RECEPTION

The members of the Congress, together with their wives and other guests, altogether a company of approximately 650, were received by the Lord Provost and Magistrates of the Corporation of the City of Glasgow in the Satinwood Salon of the City Chambers on Monday evening, from 8 till 8.30 p.m. The Square fronting the City Chambers was illuminated by coloured fairy lights suspended from the electric standards in the Square, while the interior of the City Chambers was profusely and artistically decorated with flowers and flowering shrubs.

After being received by the Lord Provost and Magistrates, the entire company adjourned to the magnificent Banqueting Hall of the City Chambers, where the Lord Provost officially welcomed the guests.

In welcoming the guests, THE LORD PROVOST (Sir John Stewart, LL.D.) said: I am delighted to see so many veterinary people here to-night, and I want to give you a very hearty welcome to the City of Glasgow. A good many Glasgow citizens are here, I expect, to-night, so they do not require to have any welcome at all, because they are really at home. This morning I am told that you met down in the Exhibition buildings and had a Conference, at which I had allowed Bailie Mrs. Mann to deputise for me, and I am told that she made a very fine speech. (Hear, hear, and applause.) I have really arrived at the conclusion that women can speak better than men. (Laughter.) If they do not speak better, they always speak longer. (Laughter.) However, Mrs. Mann frequently deputises for me, and I always feel I am absolutely safe in her hands. I understand that she gave you a disquisition on your business as veterinary surgeons and compared your work to that of the ordinary medical men, who merely look after our bodies, but you look after the bodies of the animals that we live on. I was told she gave a very learned exposition with regard to the effects, medically, on the animal and how these synchronised with the work of the ordinary medical profession. Now, what Mrs. Mann knows about veterinary matters would fill more than a library. There have been, of course, from time to time, statements made as to the necessity of human beings living on a vegetarian diet. We had at one time in the Corporation of Glasgow two gentlemen who were extreme vegetarians—and they both died very early. (Laughter.) Personally, I have always thought that I was possibly the most extreme vegetarian one could have, because I remember that in the Old Book it is laid down that all flesh is grass. In other words, I allow the animals to eat the grass; then I eat the animal

and, therefore, I am the extreme vegetarian. (Laughter.)

However, to-night you are not here to hear a discourse on your business at all. To-night, you are here at the invitation of the Corporation of Glasgow, and the main purpose of this meeting is to give you a jolly good night's entertainment. I suppose that your Association—I do not know—is organised for the purpose of protecting your profession. I would not call you a Trade Union by any means, but I think there is something similar to a Trade Union both in the medical profession and also in the Veterinary Association. However, we are all gathered here to-night, and I hope you are going to enjoy yourselves exceedingly well. The Corporation of Glasgow has in its hands the opportunity of inviting the various organisations that come within the walls of the city, from time to time, to enjoy themselves by dance, song and music. I have no intention of introducing politics, which is always a contentious matter, or anything else that would be likely to break up a happy party. You are going to have light—very light—refreshments (laughter) and, I believe, there is a programme of music. The time to dance is now; the place to dance is here, and the way to really enjoy a dance is to make other people enjoy it as you do. You are as welcome as the flowers in May, although it is September, and I hope you will have a very enjoyable evening here to-night. (Loud applause.)

The President (greeted with loud applause): I regard it as a very high honour indeed to be able to come here to-night and to thank you for the welcome which you, my Lord Provost, have given to us. The magnificent attendance here to-night, my Lord Provost, indicates of itself how much we appreciate it. The National Veterinary Medical Association of Great Britain and Ireland is a body of many activities. It exists for the advancement of science and for the spread of knowledge of animal diseases, and, even more than that, for the knowledge of the production of health in animals and the prevention of disease, and, further, for the very laudable purpose of promoting and maintaining the dignity and interests of the veterinary profession. These objects, sir, are attained by means of meetings and publications. The headquarters of our Association are in London and, normally, the Council of the Association meets in London. Throughout the country, however, there are Branches and Divisions of the Association holding sectional meetings to discuss veterinary and technical matters. Also affiliated to the parent body are many veterinary societies throughout the Empire. In addition to these, we publish a weekly journal, the *Veterinary Record*, which is read by the veterinary profession not only in this country, sir, but throughout the world. Each year a Congress of the Association is held, and this year we have been very happy indeed to have our Congress in Glasgow. It has been a momentous year, if I may say so, in the history of the profession. It is a momentous year in Glasgow, by reason of the great Empire Exhibition which is being held here. It is somewhat commonly thought throughout our profession, my Lord Provost, that, like Will Fyffe, "I belong to Glasgow." I do not, actually. I belong to the neighbouring burgh of Rutherglen. We in Rutherglen, as you know, sir, are sometimes critical of the activities of our large neighbour and play the role of candid friend, pointing out the shortcomings of Glasgow—that is to say, sir, assuming Glasgow has any shortcomings. (Laughter.) If, as you say, Glasgow has no shortcomings, we point them out just the same. (Laughter.) At the same time, we are proud of our great neighbour. We, in my small town, are always ready to maintain the greatness and importance and prestige of Glasgow above any other town—with, of course, sir, the exception of Rutherglen (laughter), but to-night is Glasgow's night—Glasgow, vigorous and big-hearted and generous. The veterinary profession of Great Britain and Ireland to-night salutes Glasgow. (Loud applause.)

Captain William Watt (Chairman of the Provisional Committee for Congress): My duty to-night is a very pleasant one, and that is on behalf of the Provisional Committee and on behalf of the National Veterinary Medical Association of Great Britain and Ireland, to thank you, together with the Magistrates and the Corporation of the City of Glasgow for the hospitality which they are extending to us at this time, as we hold our Congress in the second city of the Empire. We thank you very much for what you have done for us, for the kindly welcome you gave us this morning, and for the able way Bailie Mann invited us to enjoy ourselves here to-night. I would like also to express the appreciation of the veterinary profession for what you have done for us in that you have been one of the pioneer Corporations to utilise the services of the veterinary profession. You have been one of the Corporations that have led the way all along. That goes back quite a long way. One of the first times you used the veterinary profession was in the condemnation of meat, and it may be of interest to those present here to-night to know that the official who was instrumental in laying the evidence in one of the first prosecutions for attempting to put condemned meat on the market was none other than Mr. James Dunlop, who has made himself famous in producing the tyres which have helped motor cars to take away a good deal of the veterinary work of the

country. (Laughter.) We have had for a long time in the City of Glasgow a very efficient veterinary service. That veterinary service has two functions. One is to prevent diseased meat coming on to the market. But there is another aspect of the question which we should stress far more, and that is that Glasgow has always acted on the advice of its veterinary surgeons, and as the result of acting on their advice the City of Glasgow is in the unique position of owning five herds of pedigreed Ayrshires, all milk recorded and all tubercle free. Now, I think everyone will need to admit that that is no mean achievement. (Applause.) My Lord Provost, I beg to ask you to accept of the thanks of the veterinary profession for the hospitality that has been extended to us by yourself, by the Magistrates and by the Corporation of the City of Glasgow. (Loud applause.)

The Lord Provost: Allow me to thank Captain Donald Campbell and also Captain William Watt for the very kindly things they have said with regard to the Corporation of Glasgow, and especially with regard to the comment they have made that Glasgow is one of the pioneer cities in safeguarding the health of the community, through the assistance of the Veterinary College. Obviously one cannot have a healthy community, depending on the consumption of milk, unless one has got clean herds. Glasgow is doing its very best in that respect, and we take the compliment from you, sir, that we have at least more or less pioneered the subject of clean milk in this country. Now we are not here to discuss the why and the wherefore, nor the advantages of the medical and veterinary professions from a public health point of view. We are here to enjoy ourselves, and I wish to point out that there is a very delightful concert available for those who do not care to dance. They can be regaled by sweet music in the Council Chamber—and I may tell you, ladies and gentlemen, I have heard anything but sweet music in that Chamber. (Laughter.) I hope you have a very enjoyable night, and I thank the gentlemen for their very kind wishes with regard to the Corporation of Glasgow. (Loud applause.)

The company thereafter, according to their particular desire, were entertained in the Banqueting Hall, where dancing continued until 11 p.m., the music being provided by the Kirkland Orchestra, and the dances comprising mainly old time dances (old time waltz, Paul Jones, Highland schottische, military two step, reels, valeta, etc.) or in the Council Hall, where a delightful concert was provided by the following artistes: Mary Ferrier, soprano; Marion MacGregor, contralto; Walter McQueen, tenor; Alexander MacGregor, baritone; Jean Stoddart, humorous reader, and Tom McCall, accompanist.

Throughout the evening refreshments were served in Committee Rooms and in the Upper Corridor of the City Chambers.

A very enjoyable evening terminated all too soon.

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THE PRESIDENT'S RECEPTION

The Civic Reception, having been held on the previous evening, Congress may be said to have been at its height when, on the evening of Tuesday, September 6th, the President and Mrs. Campbell received the members, their ladies and other guests at the Central Hotel, Glasgow. The spaciousness of the Banquet Hall was taxed to its fullest extent to accommodate the assembly, the size of which bore eloquent witness to the eagerness of all attending the Conference to evidence by their presence on "The President's evening," their high appreciation of all that Mr. Donald Campbell and Mrs. Campbell have done so successfully, in the face of great difficulties and at the cost of much effort and time, to maintain unity within the Association and foster its interests and those of the profession as a whole. Local expression of this sense of deep indebtedness for fine leadership was left to a more formal occasion, though much conversational tribute of the kind was paid while the company enjoyed the dancing and other diversions provided. The assembly was most hospitably entertained at the interval in the proceedings, which were carried on with much zest and pleasure to a late hour.

Emphasising "The Social Side of Congress"

Mr. R. Stewart, Keith, has one of the rarest binder teams in the North of Scotland. It consists of two mares and a four-year-old Aberdeen-Angus bull. The bull walks on the off-side of the two mares, and is reined from the ring in his nose.

The Annual Banquet

Tributes to the Retiring President

The Annual Banquet of the Association was held in the Central Station Hotel, Gordon Street, Glasgow, on Wednesday, September 7th, 1938, at 7 p.m., the retiring President and Mrs. Campbell receiving the guests prior to the Dinner. The Dining Room was beautifully decorated, florally, with large gladioli, while the individual tables were decorated with roses.

Approximately 380 members and guests sat down to dinner, the President presiding at the principal table.

During the evening the Dorothy Arnold Ensemble entertained the company, the following artistes performing: Miss Betty Watson (soprano), Miss Jean Kelly (violin), Miss Peggy Dow (contralto), Miss Dorothy M. Arnold (piano) and Mr. James McInnes (bass).

The toast to His Majesty the King was proposed by the President and loyally responded to by the company.

The banquet ended at midnight.

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POST-PRANDIAL SPEECHES

"The City of Glasgow"

Major W. J. Brennan DeVine, M.C., F.R.C.V.S., D.V.S.M. (incoming President): As you will see upon the Toast List, I have been granted the honour of proposing the toast to the wonderful City of Glasgow. I feel that had this duty been given to someone with greater knowledge of the City it would have been more just to Glasgow than a stranger like myself trying to speak to the toast. I am not, perhaps, a stranger to Glasgow. During my youth I lived at a seaside town and, like all small boys, I was very keen on visiting ships, and all the large ships that came into the harbour in my home town invariably had Glasgow names on them, so that I came to know of and hear of Glasgow in my very early years, and towards the end of the last century—to be exact, the last year but one—it fell to my lot to visit Glasgow for the first time. I conjured up in my little mind the wonderful place it would be, and when I came here my expectations were fully realised. It greatly thrilled me to come here. Since then I have visited Glasgow many times. I have seen ships that have come from Glasgow and I have myself gone down the Clyde. I have travelled in many parts of the world and I look upon Glasgow as being the best known city in the world because its ships, the product of Scottish engineers and the Clyde, more than any other place, have gone out to all the important sea ports of the world. Glasgow, therefore, has a very important place in the world. Glasgow itself has been the starting ground of sons of Scotsmen who have passed out as Empire builders; as leaders in every walk of society. They have gone from Glasgow and spread all over the world, and the Glasgow engineer, especially the shipbuilding engineer, is recognised as the leader in his particular branch everywhere. Glasgow has been the nursery and the rearing ground of these men, and these men have brought honour to Glasgow and to Scotland. Incidentally, they have simultaneously acquired great fortunes as well as great reputations. (Laughter.) I believe that the arena of a battle was near Glasgow. and I believe the habit of having battles now and then has been carried on until the present day (laughter), the Celtic on the one side and the Rangers on the other. (Laughter.) Instead of using swords I believe they use what is called a soccer ball. (Laughter.) To-morrow, all of us who are going on the excursion will be able to see, as we pass along, the ship-yards of the Clyde. The Clyde produced a few years ago a masterpiece in ships, the *Queen Mary*, and I understand that to-morrow we will see the hull of the *Queen Elizabeth* and we will be looking at the wonder ship which will take the lead in the world of shipping and I hope hold it for many years. (Applause.)

We in the National Veterinary Medical Association are very grateful to the City of Glasgow for the way they have received us and entertained us during our stay here. (Applause.) Glasgow Corporation extended to us through Bailie Mrs. Mann and Sir Cecil Weir a very kind and warm welcome on Monday morning, and on Monday night we were able to taste to the full the great hospitality of the Corporation of Glasgow (applause), a hospitality for which they are well known.

I understand that in Glasgow they have a peculiar fund, a fund which is known as the Common Good Fund. To me it is an uncommon one—uncommonly good. It was resolved by the members of the Corporation some years ago that such money as had accumulated should be spent mainly on hospitality, mainly for the good of visitors and for the good of all the people of Glasgow. That shows they had laid the foundations to ensure that there should be nothing in the future which should interfere with the hospitality given by the Corporation. I have been to Glasgow several times in recent years and I have always met with kindness and great hospitality from the Corporation and, as you know, we had on Monday evening here an exceptional entertainment in the City Chambers, which we all very much appreciated and for which we are all very grateful. (Applause.)

The Corporation of Glasgow are an example to many other Corporations in respect of their

relationship with our own profession. The Corporation of Glasgow some 30 years ago built an abattoir which was the leading abattoir in the British Isles and which stands to-day as a good example for many other municipalities throughout Scotland to follow.

They have also shown great foresight in the adoption of what one might call model bye-laws in connection with milk and food inspection. They have been very appreciative of the good work that can be done by our profession in that respect. Glasgow Corporation can now be held up as a good example in regard to meat administration. Glasgow Corporation, as most of you are probably aware, have five herds for the production of milk and milk products which are used in their hospitals. I hope that that habit will extend to many of our other municipalities. Such a practice would ensure that those who require it most would get disease-free meat and milk. (Applause.) On behalf of the members of the National Veterinary Medical Association I offer our thanks to the Corporation of Glasgow, and I would ask all the ladies and gentlemen present now to join with me in drinking a toast to the continued health and prosperity of the City of Glasgow and the members of the Corporation. (Loud applause.)

Bailie Mrs. Jean Mann (Senior Magistrate of the City of Glasgow, greeted with loud applause): I do not feel at all in a mood to make a speech. I never do after dinner. (Laughter.) I am reminded very much, when I am called upon to make an after-dinner speech, of my experiences in the Police Court. (Laughter.) Very often I have found whilst on the Bench that I had a number of cases in the morning following convivial gatherings the night before. (Laughter.) I hope no one here will find himself before me in the morning. (Laughter.) I do think that the atmosphere at dinners is rather foggy for one to indulge in long speeches.

I was very interested to know that the proposer of the toast, so well proposed and with such high appreciation of our city, comes from Birmingham, because Glasgow has still much to learn from Birmingham. One of the first things I did when I became Convener of Housing was to ask the Corporation to permit me to visit Birmingham, because I knew that they were, I think I could say, the most progressive municipality in Great Britain. Birmingham always had a very keen civic consciousness. Birmingham built their forty-thousandth house 18 months before Glasgow. Their population is smaller, and yet the circumference of Birmingham is 50,000 acres against Glasgow's at that time 32,000 acres. Birmingham was spending one shilling per £ on housing. Glasgow does not spend twopence per £ on housing, and Birmingham had introduced schemes long before Hitler thought about it. Birmingham were encouraging young couples to marry, by actually providing furniture. I visited one of their very beautiful maisonettes and saw a young wife, and she showed me her furniture—a beautiful bedroom suite, and even a perambulator (of course, there was a baby in it) and she said, "You know, I get it all from the Town Council." (Laughter.) She asked, "Would you like to see my book?" and she brought out her Pass Book issued by Birmingham Town Council for all the furniture, and she explained that she paid up the furniture at I think 3s. per week. She paid it with her rent. That was a scheme that Birmingham introduced to enable young couples to marry and settle down together. Now, in Glasgow, we are dead scared of them marrying, because they will be wanting Corporation houses, and we are not allowed to build houses for newly married couples. That is definitely laid down to us under the Act of 1935, that we must build only for those who are overcrowded or for those who are being removed from buildings about to be demolished.

Well, I came back from Birmingham and I introduced a furniture scheme in Glasgow, somewhat different from Birmingham. I found that we were moving people from room and kitchens to perhaps four-apartment houses and they were not taking advantage of the extra rooms; that in fact they were all huddling themselves together into one room, because they had not the furniture, and we introduced a scheme whereby we furnish one bedroom and the tenant pays for it, together with the rent; like Birmingham, we have found that scheme to work exceedingly well and it enables the poorer section of the community to move into a larger house, knowing that one room will be furnished in addition to the furniture which they may bring along. (Applause.) Now we are indebted to Birmingham for that and to Birmingham for the very kind things that they have said about Glasgow. I was interested in Major DeVine's remarks regarding the Common Good. You know, if we are in difficulty as to where we shall charge items that perhaps we cannot defend just too well, we can always fall back on the Common Good, until the Common Good has become more or less a by-word when we want to hide certain items of expenditure. (Laughter.)

I do feel that in Glasgow our hospitality might be extended to include wines of our own country or the wines of the country from which our visitors come. (Applause.) As many of you know, there has been a resolution of long standing in Glasgow which confines Glasgow's hospitality to soft drinks, and just the other day I was talking to the gentleman who was responsible for that resolution. I told him I felt very much that when we had visitors it seemed utterly mean not to offer them what they get anywhere else, and he said, "Well, you know, Mrs. Mann, I never meant my

resolution to be extended so far as that, but somehow or other when one begins to form a resolution and it goes through, it is just like an Act of Parliament; there are so many interpretations that it is interpreted in the widest sense."

We are also gratified to know that in Birmingham there is almost no unemployment. What seems to be our loss seems to be the gain of the Midlands of England. I have noticed that in Nottingham, Coventry, Birmingham, Leicester and the cities of the Midlands, unemployment very seldom exceeds 5 per cent., very generally 3 per cent. In Glasgow, we are very lucky if we can get under 10 per cent. At the moment, our unemployment figures are the lowest they have been for a considerable time. They are 80,000. That still is an exceptionally high figure, but, in spite of that, Glasgow is still holding its chin up and not merely the Corporation but the individuals of Glasgow.

The Scottish Development Council took its job in hand and went ahead with the Exhibition, and I think you will agree that they have made a very splendid contribution to the prestige and reputation of the City of Glasgow. (Applause.) As a member of the Corporation engaged in different duties, I cannot but admire and pay tribute to the work and ability and long-suffering patience that has culminated in our splendid Empire Exhibition. We in Glasgow Corporation are very grateful that the Exhibition has brought to our City so many very fine people, including the National Veterinary Medical Association. It is customary to tell every conference that it is the most important conference that has ever come to our city. (Laughter.) It is very difficult to distinguish in their order of precedence the relative importance of the conferences that come to our city, but we are very glad indeed to have welcomed your Association, and on behalf of the Lord Provost, Magistrates and Town Council of the City of Glasgow, I thank you, Major DeVine and you, ladies and gentlemen, for proposing and honouring so kindly the toast of the City of Glasgow. (Loud applause.)

"The National Veterinary Medical Association"

The Rt. Hon. The Earl of Home, K.T.: I am most grateful to you, sir, and to the members of the Council for your kind invitation to me to propose this important toast this evening. For myself, a layman, I considered it only right and courteous to you, ladies and gentlemen, to learn something of your past history, and so would you allow me, very briefly, to tell you just a little about the rock from which you are hewn and, for these few minutes, would you kindly let me read rather carefully from my notes, because I know there are many critics in this distinguished gathering and I want to be accurate.

Well, Mr. President, your title is one of great antiquity, for the Latin term *veterinarius* is as old as the first century *Anno Domini*, and horses and their management and treatment were written about by Homer and Xenophon and Virgil; and Hippocrates, the father of medicine, wrote a treatise on the veterinary art, but its true founder I understand was Vegetius, only in A.D. 300, and his work became the oracle of succeeding generations.

It is interesting to know that to a somewhat later date belong the first application of iron shoes to horses' feet, and the maker of shoes, as many of you know, was entrusted with the medical care of horses. Hence the word "farrier," which is often still, or sometimes still, applied to veterinary surgeons.

Then Constantine, Porphyrigentius—Mr. President, that is a good effort at this stage of your banquet (laughter)—ordered the writings of the earliest students of the veterinary art to be collated, and in the sixteenth century Francis the First of France ordered this collation of Constantine to be translated from Greek into Latin and from Latin it was translated into Italian, French and German and dispersed all over Europe. At the same time the work of Vegetius appeared in several languages. Your great art and science made gradual progress in the seventeenth century.

In 1761, the art was elevated into a science, when France established the first veterinary college at Lyons, the first Professor being Bourgelet, who wrote numerous anatomical and medical works. Shortly afterwards a second school was established at Alfort, near Paris, to which Bourgelet was transferred, and both these colleges, I understand, are still flourishing, and there were also establishments of a similar kind organised in the capitals of every European country, including London.

Bourgelet and Le Fosse and his son, were illustrious pioneers of the art in France, and in Britain Thomas Blunderville, born in 1561, was one of the earliest writers on the subject, but it is curious to me—it may not be to you, ladies and gentlemen—to know that the majority of these professors of old were ignorant of the nature of disease: glanders, blindness and poll-evil were rampant, and the diseases of cattle were little studied, and hence the loss of animal life was very large.

The importance of a more extended knowledge of the art as a science began to be felt in England, and the Odiham Agricultural Society in 1791 founded the Veterinary College of London.

Then, in 1844, as you know, a Royal Charter recognised the veterinary surgeon's art as a profession, and granted to the members of the

Royal Veterinary College of London and the Veterinary College of Edinburgh a charter constituting them a body corporate to be known as the Royal College of Veterinary Surgeons. The London College was established in 1791, Edinburgh in 1823, Glasgow in 1863, and there were also colleges in Liverpool and Dublin; and now, of course, there are colleges in the United States, Canada and Australia, India and the world over.

I do not like and you would not like me to mention the Edinburgh College without referring to the very sad loss sustained by the death of Principal Charnock Bradley. His great knowledge of veterinary science and his devotion to his work were only equalled by the respect and affection of all his students, and, indeed, of all who knew him. I had the great pleasure of his acquaintance and friendship in social service work in Edinburgh, in which he was so deeply interested, and like all who knew him, I shall always remember with deepest gratitude, his great help and kindness.

Such, Mr. President and gentlemen, were the pioneers of your noble profession and science, and such is your noble heritage, and nobly do you fulfil your vocation on behalf of the dumb animals which Providence has committed to your care. It is the inability of your patients to describe their symptoms and suffering which makes your work of exceptional difficulty. Your diagnosis of their troubles can only be made from the result of your most careful study and experience.

Remember, gentlemen, that on your skill depends not only the health and vitality and often life of horses and cattle and other animals, but also in many cases the financial stability of those who use these animals in agricultural and other industries and, therefore, also the welfare and happiness of all those who are depending on these employers; and in the case of dairy herds you are able to ensure that the milk is in every way suitable for the nourishment of children and young people on whose physical fitness their own welfare and happiness and the future of our race depends.

You can, therefore, feel with just pride and gratitude that your services are of the highest value to humanity as well as to the dumb animal.

Gentlemen, I also like to think that your work for the main part takes you away from the madding crowd into the quiet places of our green and pleasant land. In your journeys throughout the hills and dales to the peaceful homesteads of these fair islands you are a companion to Nature in her varying moods and also a companion to Him who made all things bright and beautiful, all creatures great and small, and from Whom come the gifts which enable you to be of the utmost service to your Creator and to your fellow man. Your profession demands constant mental alertness and bodily fitness. It may often be hard, after a long day's work, to be called out in the watches of the night to tend some sick and suffering animal, but there is something wonderfully attractive and appealing to be about when this part of the northern world is asleep and the noise and glamour of the market place are hushed. That is the time when peace comes into the hearts of men and women and when wrath, envy, hatred and malice seem to be so wrong, so unnecessary and so petty—and the time, gentlemen, when you will feel that you are the better men for your lonely experience.

May I ask you to-night to make full use of the knowledge and thoughts you gain from your companionship with Nature, for in that way you will help others to see the changes and chances of life in their true perspective, and to face its problems and difficulties with calm assurance and certain hope. There has been of late years and there is in increasing measure to-day, a wish and, indeed, a determination to raise your noble profession to a worthier dignity, which is its rightful place. (Applause.) Young men, therefore, Mr. President, should be eager to qualify for a profession which is of intense interest and of essential importance in every civilised community. They may sometimes feel that their life and work are hard and the results often disappointing, but when that feeling comes to them—as, after all, it comes sometimes to us all, doesn't it, no matter what our business in life may be—let them call to mind for their encouragement the words of that grand old Scottish sportsman and soldier and fine writer, philosopher and poet, Major Whyte Melville:—

> "There are men, both good and wise, who hold that in a future state these creatures we have cherished here below will give us joyous greeting as we pass the golden gate. Is it folly that I hope it may be so, for never man had friend more enduring to the end, truer mate in every turn of time and tide? Should I think we would meet again, it would soften half my pain at the place where the old horse died."

Lastly, Mr. President, may they always remember for their inspiration, comfort and strength, these words from the book of eternal truth:—

> "God made the beast of the earth, after his kind,
> Cattle after their kind,
> And everything that creepeth upon the earth, after his kind,
> And God saw that it was good."

Mr. President, I thank you for your most kind hospitality to me to-night and for all the friendship you have given me. I beg to propose

the toast "The National Veterinary Medical Association," coupled with your name, Mr. President, and although I have not been at your conferences during the year, I have been told to-night of the magnificent work you have done for this Association (loud applause) and how all have admired your wise guidance and your genial friendship, and how they look back to your term of office always with the happiest remembrances. I give you the toast, "The National Veterinary Medical Association." (Loud applause.)

The President's Reply

On rising to the toast, the President (Captain Donald Campbell, M.R.C.V.S.) was greeted with prolonged applause and musical honours.

The PRESIDENT: It is impossible for me to say how touched I feel at your great kindness to me to-night. I regard it as a high honour to be entrusted with the duty of replying to the toast of The National Veterinary Medical Association, proposed by Lord Home in a manner so able, with such appreciation and understanding, with an eloquence which I cannot possibly hope to emulate, and with a degree of erudition which astonished me.

Lord Home is a member of the famous Douglas family renowned for centuries in Scottish history. He himself has for long been noted in the public life of Scotland for his many beneficent activities. During the War he had a distinguished record. Since then, in the service of the cause of peace, his record has been no less distinguished. He has devoted much of his time to agricultural affairs, chiefly in connection with that famous body, the Highland and Agricultural Society of Scotland, and his keen interest in veterinary matters is indicated by the fact that he is Vice-President of Glasgow Veterinary College. (Applause.)

The National Veterinary Medical Association is a body which all those present who are members of the profession long and desire to serve. In its early days it met with difficulties and every form of discouragement, and I would like to take the present opportunity of paying some tribute to the men who founded it. They were men of foresight, of public spirit, men of the pioneering spirit, of vision, and of the courage which was necessary to enable them to carry the burden up the hill of adversity.

To-day, the Association is an important and influential body comprising at least two-thirds of the members of the veterinary profession in these islands, and probably three-fourths of the available members of the profession. It has given my wife and myself great happiness to have this magnificent Congress in Glasgow, signalising the termination of my year of office as President of the Association. I should say that the proportion of veterinary surgeons and their wives who can say "Sauchiehall Street" is probably higher to-day than ever it has been in the history of the profession. (Laughter.)

It has been a memorable year in the annals of the veterinary profession; not, of course, because I have been President of this Association (laughter), but because the year has seen the inauguration of a great national scheme for the better control of animal diseases. The Association, I think I may say, helped very considerably in the development of that scheme by giving to the Ministry of Agriculture that practical advice which from its experience it was able to give. At the same time, I think I may also claim that it did not neglect to look after the interests of its own members, a perfectly laudable thing to do. The task was one of considerable difficulty, and I confess during the long period of negotiations and discussions with the Ministry of Agriculture there were times when I felt discouraged at the apparent uselessness of it all—as if I were knocking my head against a wall. I felt like the nigger who actually was engaged in knocking his head against a wall. A man came along and said, "Why are you knocking your head against the wall? Surely that cannot do you any good?" and the nigger said, "No, sur, it don't exactly do me no good, but it sure is heaven when I leave off." (Laughter.)

Whatever final hopes I have of heaven, I certainly am not going to say it was heaven when I left off, but the discouragement, at any rate, did not matter, nor did it last with those who were associated with me; otherwise nothing would have been achieved, and I think something—perhaps something very great—has been achieved. How much, time only will tell, but I state now, here, my belief that the results will be, for our profession, increased usefulness, increased prosperity and enhanced public esteem. I would like, perhaps, to forecast or to attempt a little more minutely to forecast, the future, but that is a dangerous thing to attempt, so I refrain. One somewhat unfortunate result of the inauguration of this scheme has been that, with the absorption of so many members of our profession into the Civil Service, the rules of the Civil Service have made it impossible for these members to play in the Association as active a part as we would like them to play, or as I believe they would like to play themselves. I recognise that at the present time it would be inadvisable for a Civil Servant to occupy high office in this Association and officially conduct negotiations on behalf of the Association with a Government Department, but I am strongly of the opinion that it is desirable that that restriction should only be of a temporary nature. ("Hear, hear," applause.) Arrangements have been made which, for a year or two, will probably prevent the matter becoming one of acute practical interest, but by that time I hope to make it possible to

have the whole question reconsidered and to enable veterinary officers in Civil Service to hold high office; to hold the highest office in this Association.

There are many and varied activities of the Association, but this is not the time nor the place to speak to them. To-night we meet to dine together, to enjoy each other's company, and to do what honour we can to our guests. Sir, on behalf of the National Veterinary Medical Association of Great Britain and Ireland, I thank you. (Loud applause.)

"THE EMPIRE EXHIBITION"

Major J. G. McGREGOR, T.D., M.R.C.V.S.: When those of us who are fortunate enough to live in the West of Scotland—and I may assure you we consider ourselves fortunate to live in that most delightful part of Britain—learned that in 1938 there was going to be an Empire Exhibition in Glasgow, we decided that this was the opportunity that we had waited on so long. I think there are very few members of the Association present to-night who were present at the last Congress held in this city. At any rate, we have waited long, but I think we have waited well for this opportunity, and we decided that in 1938 we would make it our business to bring the Association for its Annual Congress to Glasgow. To-night you have seen the result, and I think the result has justified all the labour expended in bringing you here. ("Hear, hear," and applause.) We have had a very successful Congress, and in achieving that result we are indebted to many people, but if I might make comparisons, I would say that chiefly we are indebted to the authorities who have organised the Exhibition for the great help which we have received from them. We have received help from all the members but particularly, if I might mention names, we have received help from Mr. Murdoch, that good friend of the Glasgow Veterinary College (applause), who has done so much for the veterinary profession and the Veterinary College in this city. We have received the greatest help from the Exhibition Authorities. They have placed their Concert Hall and their suite of rooms at our disposal. Once we learned that that was going to be our fate, we were very happy. We realised that the success of the Congress had been established. (Applause.)

Since the members arrived they have had very little time to explore the Exhibition but they may have some time left after the meetings on Friday to make an examination of the exhibits at the Exhibition and I would like to give them some points as to things that they may be particularly desirous of seeing in the Exhibition. In the first place, I think you should all visit the Palace of Arts and gain an idea of what Scotland was like in the past: particularly would I recommend that you should see the Raeburn paintings exhibited there. I would also suggest a visit to the Model Dairy, which was mentioned by Sir Cecil Weir in his address of welcome at the opening of Congress; also visits to the wool exhibit there, and to the historical section of the Exhibition, where there are very fine exhibits of manufactures of bygone days, particularly of silver and pewter. Neither should you omit to see the wonderful Palace of Engineering and the Palace of Industry. I am confident that the longer you spend in the Exhibition the more pleased you will be that you have visited it. (Hear, hear.)

There is one exhibit to which I think you should all go. It is an exhibit which I came across when I was conducting Dr. Campbell and a party of Americans, who had come here and spent such a happy day in Edinburgh a few weeks previously, round the Exhibition. I had taken this party to one spot in the Pavilion of the Union of South Africa where there is a bust of a man whom South Africa is proud to honour. The bust simply gives the man's name. It does not say what he was. The man who is thus honoured by South Africa as being one of the builders of the Empire is Sir Arnold Theiler. (Applause.) I would like the members to go and pay pious homage to that bust. It is an inspiration to all the members, and particularly to those members who went abroad and blazed the trail of Empire. I do not think the country at large recognises the part played by the veterinarian in these outposts of Empire. These parts mainly depend on our agriculture and if our agriculture is to be successful, there must be an ability to deal with the animal plagues that sweep over these countries; in attacking these animal plagues the Empire must depend on the trained veterinarian, and in that respect the veterinarian is adding to the prosperity of our Empire. In this connection, I should like to pay tribute to those men whom we only see at our Conferences, say, once in ten years. The Empire Exhibition is a tribute to what these men have done and we are proud of those veterinarians who have gone out and built up the Empire in that way. I also wish to pay tribute and thanks to the organisers of the Empire Exhibition for the great help they have given the Provisional Committee in making preparations for the reception of the Congress in the city and for the many ways in which they have lightened the burden of the Provisional Committee. I ask the members to rise and drink to the health of the Empire Exhibition and to its continued prosperity, coupling with the toast the name of Captain S. J. Graham. (Applause).

In reply, Captain S. J. GRAHAM thanked Major McGregor for the able and thorough manner in which the toast had been proposed. He referred to the support given by the citizens

of Glasgow to the Empire Exhibition and expressed the opinion that if this support continued the success of the Exhibition was assured. He also referred to the skilled workmanship which had been employed in erecting and completing the Exhibition in time for the Official Opening. Two points they had in mind in organising the Exhibition were (1) to emphasise to the world the peaceful aspirations of the people of the British Commonwealth and (2) to foster Empire trading and establish a closer friendship among the people of the British Commonwealth of Nations. The Exhibition authorities had in mind the possibility of conferences of all sorts being held within the Empire Exhibition grounds, but in his wildest dreams the speaker never expected that there should be a total number of nearly eighty conferences held there. (Applause.) In conclusion, he expressed the hope that in his daily round at the Exhibition he would see some of the members looking at some of the exhibits to which Major McGregor had called their attention.

"Our Guests"

Captain J. R. Barker, M.R.C.V.S., D.V.H.: I have been handed a long list of guests but it will be impossible fo me to deal with each individual guest, because of the lateness of the hour. Still, it is necessary for me to say how grateful we are to the Earl of Home for finding it possible to accept our invitation to the banquet and for the brilliant way in which his lordship has proposed the principal toast of the evening. (Applause.) It is also meet that we should render our hospitality to the City of Glasgow and to Bailie Mrs. Mann. I suspect that the President had some alterior motive for asking the Provost of Rutherglen to be present. (Laughter.) We have with us many visitors from overseas, not the least of whom is the President-Elect of the American Veterinary Association, Dr. Cassius Way, in whom, together with Mrs. Cassius Way, the National Veterinary Medical Association of Great Britain and Ireland have two very good friends. At the International Conference at Zurich, Dr. Cassius Way asked our President to confer with him in regard to the secret of the success of the National Veterinary Medical Association of Great Britain and Ireland. Prior to that we had not thought that our reputation stretched over to the United States of America. We also have present, as our guest, Colonel Max Henry, from Australia. Although we have not been able to take the Ashes from the Australians, I think this is only a pleasure deferred until the next trip. (Hear, hear.) We are also pleased to have with us a representative of the Royal College of Veterinary Surgeons in the person of Mr. Livesey, the President of that College, who is very sympathetic towards the National Veterinary Medical Association. To Dr. Bullock we render our grateful thanks. We like to remember him as chief organiser of perhaps the most successful World Congress in London in 1930. (Applause.) I have been asked to couple with the toast the name of Mr. Alexander Murdoch, the Chairman of the Governors of the Glasgow Veterinary School, who has put in a tremendous amount of work for the profession. Mr. Murdoch's chief hobby in life is the breeding of high-grade horses and his greatest ambition is to win the Cawdor Cup. There is no greater friend to the veterinary profession than the owner of high-grade horses. (Applause.)

Mr. Alexander Murdoch, C.A.: I take it as a very high honour to be asked to reply to such an important toast as "The Guests" of your Association, but I feel that my first duty is to congratulate Mr. Campbell, your President, on the great honour that you have conferred upon him in making him your President. (Applause.) Mr. Campbell is one of my personal friends, and I hold him in the greatest respect. ("Hear, hear," and applause.) Captain Barker has referred to the various guests that your Association has here to-night. I would like to refer—very shortly at this late hour—to the important functions that your profession is carrying through. At one time your duties were composed mostly in looking after the health of animals, but now your profession is getting the recognition that it deserves. In addition to looking after the health of animals, you are performing duties that are looking after the health of the human race. I take it that the reason why you have asked me to reply to this toast is the fact that I am Chairman of the Governors of the Glasgow Veterinary College, and as such I feel that I owe the whole of your members an apology for not appearing yesterday afternoon to receive you and give you on behalf of the Governors a cordial welcome, but I had what was equivalent to a Royal Command and I had to obey it and disappoint you, but I believe that the Vice-Chairman gave you a very fine reception, and I hope you enjoyed your visit to the Glasgow Veterinary College, such as it is. (Applause.) As you are all aware, at the present moment a Committee is sitting on Veterinary Education, and we, the Governors of the Glasgow Veterinary College, are waiting patiently for their Report. Whatever it contains, I do hope that it will be in the best interests of the veterinary profession. (Applause.) I also hope that the recommendations are such that we will receive some substantial Government support that will allow us to build a college worthy of the great city of Glasgow. (Applause.) Government Committees do sometimes make mistakes and do not anticipate the needs. In 1922, there was a Government Report, known as the Constable Report, and the recommendation at that time

was that the Glasgow Veterinary College should be swept away and that one College should be left in Scotland to carry out the education of the veterinary students. The Governors, with great courage and with the assistance of Glasgow Corporation and the various County Councils adjoining the city, and with the assistance of loyal friends of the Glasgow College, were able to carry on and the results that have been achieved since then have been justified and they have had, I think, quite a good reward.

In conclusion, Mr. Murdoch thanked Captain Barker for the manner in which he had proposed the toast and the members for the way in which they had responded to it, and expressed the hope that the members would enjoy their visit to Glasgow and to the Empire Exhibition. (Applause.)

"THE LADIES"

The toast of "The Ladies" was proposed by Dr. LESLIE JORDAN, PH.D., M.R.C.V.S., in an extremely witty speech in which he remarked that the success of the veterinary practitioner was in large measure due to his wife.

Mr. T. A. R. CHIPPERFIELD, B.SC., M.R.C.V.S., briefly replied to the toast, on behalf of the ladies.

"THE CHAIRMAN"

Mr. J. W. MCINTOSH, M.R.C.V.S., F.R.S.E.: I regard it as a great privilege to have the honour of submitting the toast of our Chairman, the President of our Association. This toast, although last on the list, is by no means least important, and certainly to-night one of the most deserving. ("Hear, hear," and applause.) Those of you who have followed the past year will doubtless remember that when we elected Donald Campbell—and I prefer to call him by his own name—to the office of President of our Association, in his usual modest way he expressed some diffidence in regard to his own suitability to undertake the responsibility. Personally, and I think I can say collectively, we had no hesitation. We have had every opportunity of observing the thorough, earnest and dignified way in which he has carried on the affairs of the Association during one of the most important years in its history, and have reason to congratulate ourselves on the wisdom of our choice. (Applause.) Most of you know, and probably all of you know, that he was reared in the atmosphere of agriculture, and his forbears were distinguished members of our profession and, I expect, distinguished members of the community. That is where he founded his veterinary knowledge and training.

Our President has occupied the Chair during one of the most momentous periods in the history of the Association and, indeed, I think I might say in the history of the veterinary profession. Under the new centralised scheme, many important changes have been effected. Some of these changes may not be altogether welcome in some quarters, but we must all realise that times have changed and that no scheme involving so many interests could be evolved without necessitating some difficulties and some hardships, but I do feel that the profession as a whole will rise to the occasion and will loyally support this new scheme against animal diseases. We are particularly fortunate in having had, in the Chair, at this important period, a man of the widest experience, tact and kindness, a philosopher and a general practitioner. (Applause.) I am one of those who believe that some of the finest men we have in the profession to-day are to be found in the ranks of the general practitioners. (Hear, hear.)

I am not going to detain you very long. You are all perfectly familiar with the excellent work done by our Chairman not only this year but for many years before that. At the close of this Congress, sir, you will hand over the reins of office to another, but you can rest assured that you will carry with you the continued esteem and affection of the whole profession, and the great services you have rendered to it during your year of office will be recorded for all time in the hearts and minds of those who have sat under you in the Chair. (Applause.)

In giving you this toast, Mr. President, I feel that I would be remiss if I did not mention the name of Mrs. Campbell (applause), who has so graciously and so loyally supported you in your work during the past year. I know Mrs. Campbell has made many journeys to London—a long journey—and has loyally supported you at these periods, and we are very grateful to her for all the kindness she has extended to us during your period in the Chair. I do not think it is necessary for me to say anything more but to ask you, ladies and gentlemen, to be upstanding and to drink to the health of our Chairman, Donald Campbell. (Applause.)

The applause and a repetition of musical honours which greeted the President, on rising to reply, held up the proceedings for an appreciable period.

The PRESIDENT: At this stage in my year of office, and particularly at this hour in the evening, I feel that you must all be tired of the very sound of my voice ("No!") so I will not inflict it on you for more than a very few minutes.

I feel very grateful indeed to you all for the kind way in which you have responded to this toast. I feel particularly gratified that the toast was proposed by John McIntosh. Many years ago, when I was much younger than I am now, and an exceedingly obscure veterinary practitioner, I used to read in the professional

Press, among other things, speeches and writings of Mr. McIntosh, and I was filled with regard for the splendid qualities of the man; his clearness of mind, his desire to be of genuine service to the profession and his courage. Earlier this evening I spoke of the pioneers who founded the Association. I had in mind, as one of them, John McIntosh. (Applause.) John McIntosh said that a year ago, when I assumed this office, I greeted it with some diffidence, and that is true, but you were then, as you have always been, most generous to me and my diffidence gradually disappeared as I kept saying to myself, "These people are my friends." I feel to-night, more than ever, that you are all my friends. ("Hear, hear," and applause.) I am very glad indeed that Mr. McIntosh referred in his speech to my wife (applause), who has been so great a help to me throughout. She has given me the benefit of her advice. She has been my sternest critic. She has seen that my tie was kept straight and my chain of office hanging plumb—duties she has continued to do right up till to-night, for I see my chain of office is hanging all right at the moment. (Laughter and applause.) Ladies and gentlemen, I thank you very much indeed for all your kindness and for the warmth with which you have responded to the toast, proposed in so able and friendly a manner by my friend, John McIntosh. Thank you very much indeed. (Loud applause.)

The banquet concluded by the company joining hands and singing, in traditional style, "Auld Lang Syne."

The "Queen Elizabeth" as Seen on the Congress Excursion

Congress Excursion

CRUISE ON CLYDE WATERS

[Contributed]

As a relaxation from "talking shop," arrangements were made for a day's outing on the Clyde on Thursday, September 8th. One of the smartest of the river fleet, the *Queen Mary II*, was chartered for the occasion and the weather clerk obliged with an absolutely perfect day.

A microphone was fitted on the bridge so that the various points of interest could be relayed to the upper and promenade decks, and this was found to be a convenience for those who were visiting the river for the first time.

Starting out from Bridge Wharf at 10 o'clock, the company, looking remarkably fresh after their various "nights out," soon settled down and it was evident that they were very much interested in the river and its traffic. Right opposite at the Broomielaw, Glasgow's original Quay, was moored the famous *Royal Scotsman*, one of the twin ships which provide a daily service to Belfast, and farther down on the same side, were more Burns-Laird ships which sail to Dublin, Londonderry and other Irish ports.

Opposite, on the South Bank, was seen the entrance to Kingston Dock, opened in 1867—the oldest on the Clyde; then the characteristic round towers of the Harbour Tunnel came into view and beside them the new fitting-out crane to take the place of one which is to be demolished where the proposed new High Level Bridge will cross the river.

Then followed in quick succession Queen's Dock, Prince's Dock and a host of busy shipyards famous all the world over. Particular interest was taken in Fairfield with a new £7,000,000 battleship on the stocks, and in the Merklands Lairage where it was suggested certain veterinary surgeons retired on Sunday mornings for a quiet game of solo! There could be seen in various yards cargo vessels, submarines, destroyers, dredgers, boom defence and mine-laying craft all in various stages of completion.

It was evident, however, that all eyes were straining for the first glimpse of the *Queen Elizabeth*, and a glorious sight she was in her launching colours with the morning sun astern glinting on her four enormous propellers. Due for launching in little over a fortnight, so far was she advanced that she looked ready to take to the water at any moment.

Captain MacKinnon very kindly slowed down the *Queen Mary II* so that all could have a perfect view and some general particulars of her size and equipment were given from the bridge. Her launching cradles were plainly visible, as were also the platforms from which the Queen performed the naming ceremony on Tuesday, September 27th.

Passing Eskine Ferry, Old Kilpatrick and Bowling, Dumbarton Rock and Castle came into view with, in the distance, the brave shoulders of Ben Lomond. From here the river began to widen out and opposite Cardross Light was pointed out the site of the Castle where Robert the Bruce died in 1329. It will be remembered that he captained the Scottish side at the famous International 15 years previously. The visitors were defeated on that occasion partly through De Bohun having to retire early with a head injury but mainly owing to an unexpected break-in of the Scots supporters!

At Port Glasgow, an unusual sight was a cargo vessel all ready for launching with flags flying and tugs standing by to take control, but there was no time to wait and passing close in to Greenock, a brief call was made at Gourock Pier to take on additional passengers.

From this point a beautiful panorama met the eye—Gareloch with Helensburgh and Rhu guarding the entrance—Loch Long with a background of rugged hills—the Holy Loch with Hunter's Quay, the mecca of Clyde yachtsmen, then over to Kirn and Dunoon with the famous Castle Hill and statue of Burns' Highland Mary—past Innellan and the Cowal Hills, round Toward Point and into the beautiful Rothesay Bay—the Madeira of the North.

Bearing north-west with Loch Striven on the right, the glorious vista of the Kyles of Bute lay straight ahead—an enchanting sight. Towering hills rising above blue waters, warm sunshine on "the bonnie purple heather"—no wonder voices were hushed in the presence of such grandeur.

A Typical View "Down the Firth"

Through the narrows, peeping at the "Maids of Bute," past Tighnabruaich and the Island of Inchmarnock, the majesty of the Arran Peaks rose ahead crowned by Goatfell and The Sleeping Warrior. On the north end of Arran was pointed out the "Arran Mile," where the *Queen Mary* carried out her speed trials.

After rounding the Garroch Head, the deepest part of the Firth, a course was set between the Cumbraes to Fairlie with its famous yacht-building yard, then northwards through the Largs Channel. Here was perhaps the grandest view of all—Ailsa Craig, Arran, Bute, Ayrshire and away in the distance the rugged peaks beyond Arrochar and Garelochhead.

Rounding the Cloch lighthouse, back to Gourock and into the River channel once more, the company drifted aft and indulged in communal singing led by the ship's orchestra—then an eightsome reel and presentation of prizes to the winners of the "Treasure Hunt" and of the competition for guessing the ship's mileage to 3 p.m. Another view of the *Queen Elizabeth* from a different angle and, all too soon, back at the starting place.

It was a memorable day from every point of view and it is hoped that many will return to a more leisured survey of the beautiful Firth of Clyde, after an experience which moved one of the lady participants to say, as she landed: "I am quite dizzy with the loveliness of the scenery."

[The admirable microphone commentary was contributed by Mr. John Mackie, M.A., B.L., whose experience of aerial wireless telephony in the old days of the Royal Flying Corps might rank him amongst Britain's first broadcasters.]

* * * * *

The Three Lochs Tour

On the Monday afternoon a party of over one hundred and thirty took part in a motor run to the Three Lochs. Joining 'buses at the Exhibition, the city was crossed to Bearsden and from there by way of the moorland, Stockiemuir Road, Balloch was reached. On the way, glimpses of the Islands on Loch Lomond were obtained and away to the north and east the panorama of the Rob Roy country, the purple-clad Grampians, the fertile valley of the Forth and the Campsie Hills were unrolled. From Balloch to Tarbet the road for 16 miles skirts Loch Lomond. The heather was in full bloom and the bracken and trees were just beginning to tint. A delightful tea was served in the dining-room of Tarbet Hotel, which overlooks Loch Lomond and is shadowed by the 3,200 ft. peak of Ben Lomond.

After tea the 'buses travelled through the two-mile pass to Arrochar at the top of Loch Long. Interest was shown in the torpedo testing range on the Loch. After six miles of rugged grandeur down Loch Long, the hill was climbed to Whistlefield where there was afforded a good view of Loch Goil and Glasgow Corporation's Mountain Estate of Ardgoil, and a full-length view of the Gareloch and the Firth of Clyde. From Garelochhead to Helensburgh the road hugs the shores of the Gareloch with its numerous yachts. From Helensburgh the hill was crossed back to Loch Lomond and on through the Vale of Leven to Dumbarton. On the journey up the Boulevard a newly discovered Druid's Temple was seen, also a distant view of the Cunarder "Queen Elizabeth" on the stocks at Clydebank.

Although the tops of the hills were mostly shrouded in mist and a drizzly rain fell for most of the way, the party appreciated to the full the beauties of the country traversed, and were grateful to the gentlemen on each 'bus who acted as couriers and pointed out the places of interest. If only the sun had come out, the afternoon trip to the Three Lochs would have proved a strong rival to the day's sail on the Clyde for happiest memories.

Mrs. Barker, Mrs. Campbell, Captain Barker and Dr. Udall
(The Secretary "robes" the President in the background)

* * * * *

VETERINARY BENEVOLENT DANCE

A most successful and enjoyable dance was held at the Ca'dora Restaurant, Glasgow, on Thursday evening, September 8th. There were well over 300 persons present and the general arrangements were under the efficient and vivacious superintendance of Mr. Wm. Robson, Dr. Gordon and Mr. Alex. Thomson. The Scottish dances gave great pleasure, and the eightsome and foursome reels, in which the swirl of the kilt was seen to advantage, compelled the admiration of everybody. There was perhaps just as much abandon in the Lambeth Walk for those who could not manage the reels, and so everyone had the opportunity to fling aside dull care. Many ladies gave prizes to be competed for by the dancers, and at the close Mrs. Buxton, President of the Ladies' Guild, graciously presented the prizes to the winners. She herself was, however, the recipient of a present from the Ladies' Guild of a powder compact in petit point, presented in an appropriate little speech by Miss Wragg, and Mrs. Nickinson, on behalf of the ladies of the "National" presented Mrs. Campbell with a crocodile bag. The winners of the two golf tournaments also received their prizes.

It is understood that the Benevolent Fund will benefit by a large sum as a result of the evening's entertainment, and we know that the cordial thanks of the Council of the Fund will go out to all those who were responsible for its great success.

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Golf Competitions

The golf competitions were held on Wednesday, September 7th, there being 18 competitors, whose entry fees realised a sum of £4 10s. for the Victoria Veterinary Benevolent Fund.

The ladies' competition for the Dunkin Cup was played over the Hagg's Castle course on Wednesday morning. Owing to their afternoon engagements the ladies elected to play 16 holes only. The winner was Mrs. Alex Thomson with a net score of 66 for 16 holes and the runner-up was Mrs. John Fox with a net score of 68.

In the afternoon the men's competition for the Simpson Cup was played over Cathkin Braes Golf Course. A tie resulted between Mr. G. T. Cattell and Dr. W. S. Gordon who each returned a net score of 75. The Simpson Cup and a medal presented by the Provisional Committee were awarded to Mr. G. T. Cattell

and the spoon presented by Captain R. Simpson was awarded to Dr. W. S. Gordon.

The medal presented by the Provisional Committee took the place of the one presented in previous years by the late Dr. Bradley. Sir Arthur Olver has very kindly expressed a desire to continue this presentation in future and has decided that it is to be known as the "Bradley Medal."

The trophies were presented by Mrs. Buxton at the Benevolent Fund dance on Thursday night.

Mutual Pleasure in the Attendance of Mr. G. H. Livesey (President R.C.V.S.)

IMPERIAL AGRICULTURAL BUREAUX

The Executive Council of the Imperial Agricultural Bureaux has elected Lieut.-Colonel George P. Vanier, D.S.O., M.C., representative of Canada on the Council, as Chairman, in succession to Mr. Nevill L. Wright, the representative of New Zealand, whose period of office has expired. Mr. F. J. du Toit, representative of the Union of South Africa on the Council, was elected Vice-Chairman.

Demonstrations

A most up-to-date and helpful programme of demonstrations was carried through at the Glasgow Veterinary College on the afternoon of Tuesday, September 6th, when the immense amount of trouble taken by those who had been good enough to make themselves responsible for this important section of the proceedings by demonstrating diagnostic technique in many aspects of veterinary work, were rewarded by the sustained interest of a large assembly. Much regret was felt at the inability of Professor Boddie, through illness, to provide his announced demonstration of poisonous plants. Mr. Alex. Thomson, the Local Hon. Secretary, had self-sacrificingly added to his labours the making of arrangements for the demonstrations, and these accordingly left nothing to be desired, valuable assistance being given in this connection by Miss Mitchell and Mr. John Birrell of the College staff. The exhibit of radiographs—a representative collection calling for special mention of the name of Mr. W. Weipers, its "organiser," on behalf of the Provisional Committee—was effectively displayed in one of the Committee rooms housing the exhibition of drugs, instruments, etc.

The Clinical Diagnosis of the Blood

(*By* Professor J. W. EMSLIE, M.R.C.V.S., B.Sc. (Agric.), Glasgow)

The two main objects of this demonstration were (*a*) to indicate the simple technical methods of examination of blood that may be performed by the practitioner and (*b*) to demonstrate the major alterations that occur in blood during the course of various diseases of animals.

Two methods of staining were employed, namely, (1) Polychromatic methylene blue for anthrax and putrid bloods and (2) Leishman's stain for cytology. The microscopical preparations comprised :—

Bacteria in blood—*B. anthracis*,
Putrefactive bacteria,
Pasteurellæ,
Sp. gallinarum.

Protozoa in blood—*B. bovis*,
T. brucei.

Types of leucocytes—polymorphonuclear, eosinophil, lymphocytic.

Indications of anaemia—normoblasts, poikilocytosis, anisocytosis.

Apparatus for blood estimations included the haemocytometer, Sahli's haemoglobinometer and the Hellige Ortho-haemometer.

Professor Emslie requests us to say that the undoubted success of the demonstration was due in great measure to the efforts of his assistant, Mr. John Birrell, M.R.C.V.S.

Urine Analysis

(*By* W. M. HENDERSON, B.Sc., M.R.C.V.S., Royal (Dick) Veterinary College, Edinburgh)

This demonstration dealt with the various tests employed in making a routine urine analysis, particularly in connection with canine practice.

The method and significance of each test was described; in addition, the appearance of the positive and that of the negative results were shown.

Typed notes relative to the demonstration were given to members attending, these being as follows:—

1. Specific Gravity

(i) Estimated by means of a hydrometer in a narrow cylinder.

(ii) *Normal Specific Gravity*: Dog—1015 to 1040.

(iii) Significance.

The specific gravity varies considerably depending on the amount of urine excreted and on the amount of total solids.

High Specific Gravity.—Usually found in all conditions where the volume is low. It is high associated with a large volume in diabetes mellitus.

Low Specific Gravity.—Usually associated with a large volume. In chronic interstitial nephritis it is constantly low.

2. Reaction

(i) Determined by means of red and blue litmus paper.

Red ..... Acid
Blue ..... Alkaline

(ii) *Normal Reaction*: Dog—acid.

(iii) Significance.

Apart from influencing the reaction by administration of drugs, the most common cause of an alkaline urine in the dog is bacterial action in the bladder giving rise to cystitis.

3. Albumen

(i) Tests.

(*a*) *Heat Test.* The urine if cloudy must be filtered. Fill a clean test tube two-thirds full of urine. Heat the top inch. Look at the column of fluid against a dark background. Add a few drops of 3 per cent. acetic acid. Heat the top inch again. If a turbity appears and persists after reheating albumen is present.

(*b*) *Nitric Acid Test.*—Run concentrated nitric acid down the side of the test tube so as to form a layer below urine already placed in the tube. A white ring at the junction of the two layers is indicative of albumen. This test is not very reliable.

(ii) Significance.

Albumen is normally absent from the urine. It may occur after violent exertion, prolonged exposure, or excessive feeding; such albuminuria soon disappears.

It is present with any degree of renal inflammation, although the amount gradually decreases as the condition progresses in chronic interstitial nephritis.

The presence of blood or pus is always associated with a positive test for albumen: it is important to determine whether the amount found is accounted for by the blood or pus or is in excess. The presence of casts in the deposit indicates renal involvement.

4. Bile Pigments

(i) Test.

Run concentrated nitric acid down the side of the test tube so as to form a layer below urine already placed in the tube. A play of colours at the junction of the two layers indicates the presence of bile pigments. (Same test as the Nitric Acid Test for Albumen.)

(ii) Significance.

Bile pigments are normally absent from the urine. They occur in the urine when excessive amounts are present in the blood. This test is not of much importance.

5. Bile Salts

(i) Test.

Sprinkle a little flowers of sulphur on the surface of the urine. If they immediately sink to the bottom of the test tube this indicates the presence of bile salts, thus accounting for the lowering of the surface tension.

(ii) Significance.

Bile salts are normally absent from the urine. They occur in the urine in similar conditions to those producing bile pigments. Their presence is not of much significance.

6. Indican

(i) Test.

To a few c.c. of urine add a drop or two of chloroform and shake well; add as much concentrated hydrochloric acid as urine, shake; add a solution of bleaching powder drop by drop. The appearance of a band of blue colour indicates the presence of indican. The intensity of the colour increases with the amount of indican present.

(ii) Significance.

A trace of indican will always be found in normal urine, but it occurs in increasing amounts during any degree of bowel stasis and intestinal toxaemia.

7. Blood

(i) Test.

To a few c.c. of urine add three or four drops of fresh tincture of guaiacum, shake, a white precipitate forms. Pour some ozonic ether down the side of the test tube so as to form a half-inch layer on top of the urine. A blue ring appears at the junction of the urine and ether if blood is present. The tube should be allowed to stand for ten or fifteen minutes before deciding that the result is negative.

(ii) Significance.

The presence of blood in the urine, apart from contamination, is always abnormal.

The "blood" may be blood corpuscles and some pigment, or it may be pigment alone.

Haematuria: Inflammation or injury of any part of the urinary tract is liable to lead to the presence of blood cells in the urine.

Haemoglobinuria: Blood pigment occurs in the urine along with any condition causing the breakdown of the red blood corpuscles in the blood stream, *e.g.*, piroplasmosis.

8. Sugar

(i) Test.

(*a*) *Fehling's Test.* — Two solutions—Fehling's No. 1 and Fehling's No. 2, are used. Equal volumes of each are mixed together for each test.

Take an inch of urine in one test tube and the same total volume of the two Fehling's solutions

in another tube. Boil both, add the Fehling's to the urine and allow to cool. If a reducing sugar is present a reddish or yellow precipitate will appear. Confirm with test (*c*).

(*b*) *Nylander's Test.*—To two to three c.c. of urine add half as much Nylander's reagent. Boil. The formation of a black precipitate denotes the presence of a reducing sugar. Confirm with test (*c*).

(*c*) *Yeast Fermentation Test.*—The urine must be free from albumen, if necessary add a few drops of dilute acetic acid, boil, and filter.

Three tubes are used—

(1) Urine, plus yeast.
(2) Glucose solution, plus yeast.
(3) Distilled water, plus yeast

the last two tubes being controls.

Leave these tubes in a warm place (about 37 deg., C.) for some hours.

The presence of a bubble of gas in Tube 1, is positive for glucose. Tube 2 should also show gas and Tube 3 should not.

(ii) Significance.

The condition most commonly associated with sugar in the urine of the dog is diabetes mellitus. Lactose may be found in the urine of lactating animals.

9. Acetone Bodies

(i) Test.

Saturate a few c.c. of urine with ammonium sulphate, add a few drops of a freshly prepared solution of sodium nitroprusside and shake, finally add some strong ammonia. The development of a permanganate colour which slowly deepens indicates the presence of acetone bodies.

(ii) Significance.

Acetone bodies are excreted in the urine when the metabolism of the carbohydrates is much reduced, either from inability to utilise glucose, or in absence of carbohydrates. They are formed from the incomplete breakdown of fats and some amino acids.

In dogs, acetone bodies are found in advanced cases of diabetes mellitus, and in certain cases of gastritis where vomiting has been severe and persistent.

10. Estimation of the Amount of Urea

(i) Method.

One c.c. of urine is introduced into a Doremus ureometer filled with a freshly prepared alkaline hypobromite solution. The urea is split up and the nitrogen evolved is collected in the closed limb. The scale indicates the amount of urea in grammes per c.c., the result is usually given as a percentage.

The alkaline hypobromite solution is prepared by mixing equal parts of the following:—

(1) A 22 per cent. solution of sodium hydroxide.
(2) A solution containing
Sodium bromide—125 grammes.
Bromine—40 c.c.
Distilled Water to 1,000 c.c.
(3) Distilled Water.

(ii) Significance.

This estimation is important in making a prognosis in chronic interstitial nephritis. In the normal dog the amount of urea should be not less than 1·5 per cent.

In chronic interstitial nephritis owing to the dog's inability to concentrate urea the amount tends to fall below this figure.

The lower it gets the greater is the danger of uraemia developing and the graver must be the prognosis.

11. Deposits

These may be obtained by centrifugalisation of a quantity of urine either by means of a hand or an electric or other mechanical centrifuge.

Material may also be obtained by allowing a sample of urine to stand in a conical glass jar for 24 hours.

A film is made from the material and is fixed by gentle heat.

For general purposes staining with methylene blue is sufficient but special methods may be used for various bacteria and for blood cells if necessary.

Significance of Material in Deposits.

(1) Epithelial cells which will indicate the part of the urinary system involved and in the case of cells from the kidney the part of the kidney itself.

(2) Hyaline casts found particularly in cases of chronic interstitial nephritis in dogs.

(3) Blood cells found in any acute inflammatory condition of the urinary tract, *e.g.*, acute nephritis, cystitis, urethritis, etc.

(4) Pus any suppurative condition of tract.

(5) Micro-organisms.

(6) Mucus, a considerable amount of mucus is frequently to be found in the urinary deposits of females.

N.B.—Urine abtained by indirect methods may contain considerable amounts of foreign material such as grit or vegetable material.

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Demonstration on Methods of Estimating Worm Infestation in Animals

(By E. L. TAYLOR, M.V.Sc., M.R.C.V.S., D.V.H., Weybridge)

By way of introduction to his demonstration, Mr. Taylor made a brief reference to the floatation technique for the recovery of the eggs of helminths from faeces. He pointed out that heavy solutions of table salt, calcium chloride, water glass, sugar and other substances had been advocated from time to time as convenient substances for floating the eggs and that the usual method is to centrifugalise the mixture to cause the eggs to rise to the top rapidly when they can be removed by dipping a glass rod on to the surface. In his opinion, however, it is better to dispense with the centrifuge and to use a short test tube, filled "a little more than full" with the mixture of salt or sugar solution and suspension of faeces, then to place a slide on the top so that all the air is excluded and allow to stand for an hour or more, by which time almost all of the eggs will have come to rest immediately under the slide and can be removed by simply lifting the slide off. The slide is then turned over and when a cover-slip is placed over the drop it is ready for examination. This method has been used to a considerable extent by Col. Wood in his work at Cambridge and is obviously one that can easily be employed by the veterinary practitioner.

This method was demonstrated by Mr. Taylor, as also the glass-rod and the cover-slip method of removing the eggs, after floatation in the centrifuge.

Mr. Taylor then went on to say that the use of the floatation method for the estimation of the extent of worm infestation is very limited; the parasitic worms lay so many eggs and the floatation technique is so efficient that numerous eggs are easily recovered, even from very light infestations.

The most important worm diseases of grazing animals are caused by strongyloid worms and by fasciola, and in all diseases caused by these worms the number of worms is the deciding factor. The obvious requirement is, therefore, for a technique by which the *extent* of infestation can be estimated.

Egg-counting methods were then developed to meet this requirement, and of these the most suitable for use in veterinary practice is a simple dilution technique which usually goes by the name of the "Stoll method." In this method of estimating, three grammes of faeces are placed in a wide-necked bottle with a few large glass beads and shaken with 42 c.c. of water until an even suspension has been obtained. This suspension is then poured through a fine screen to remove all the large particles, 0·15 c.c. of the suspension which has passed through the screen is then measured by means of a cheap automatic measuring pipette, placed on a slide and covered with a $\frac{3}{4}$ in. square cover-slip. The eggs in this amount are then counted under a low magnification of the microscope and the resulting figure, multiplied by 100, gives the number of eggs per gramme of the original material.

This method was demonstrated by Mr. Taylor, who pointed out the desirability of the use of a standard method of estimating the concentration of eggs in faeces so that reliable comparisons could be drawn between the findings of different practitioners or technicians. He also said that the Advisory Committee on Parasitic Diseases hoped shortly to publish a detailed account of the egg counting technique which they considered to be the most suitable and were making arrangements with one of the manufacturers of laboratory apparatus to supply a complete egg-counting outfit, at a reasonable price, in a wooden box that would encourage the keeping of the apparatus together and ready for use in the veterinary surgery.

Mr. Taylor then went on to say that although a most useful guide, the egg counting method is by no means perfect for the diagnosis of helminthiasis. The reason for this is to be found in the very wide variation in the concentration of eggs as a result of variation in the consistency of the faeces, in the composition of the food, the state of maturity of the worms and the state of immunity of the host animal (which influences the rate of egg production of the worms). There is also a special difficulty in the horse where a large number of different species of worms are associated with red-worm disease. These worms are of different sizes and doubtless of very different pathogenicity yet they all lay eggs of the same shape and size, so that an ordinary egg count does not reveal the nature of the infestation which in one instance may be dangerous and in another of little consequence in spite of similarity in the egg count. Mr. Taylor said that he is at the present time trying to improve on this technique by culturing the larvae after an egg count has been made on a sample of faeces and differentiating the third-stage larvae which are subsequently separated from the culture.

This method is showing great differences in the nature of the infestations in thoroughbred horses from different studs. But as yet, Mr. Taylor said, he is unable to make any definite claims for the more certain diagnosis of helminthic disease by this method.

Mr. Taylor next gave a demonstration of a method of estimating the extent of worm infestation at *post-mortem* examination. He said that nothing could compare with the value of the *post-mortem* examination of a member of a group of animals or birds where worm disease was suspected in the group and although it is rarely possible to carry this out in the case of horses and cattle it can usually be managed where sheep or poultry are concerned.

The enumeration of the parasitic worms in the intestine of the fowl is a comparatively simple matter but in the case of parasitic gastritis in sheep or cattle, where a number of the minute trichostrongylid worms ranging between 10,000 and 140,000 might be found in the fourth stomach, and as many in the first part of the small intestine of a diseased animal, the estimation of the number is more difficult.

Mr. Taylor demonstrated a method which consisted of washing the stomach and intestinal contents by running water in a wire screen, emptying the worms and larger particles into a large bowl and adding water to the amount of 4,000 c.c., 40 c.c. is then withdrawn (while stirring vigorously to maintain an even suspension of the worms) by means of a glass pipette, having a trumpet-shaped end and being fitted with a rubber bulb. All of the worms are then counted in this hundredth part of the whole by picking them out one at a time with a bulb pipette, so arriving at an estimate of the total number present. This method has previously been described in the *Veterinary Record* for May 5th, 1934, and a further development

of it in the same journal for December 14th, 1935. Particulars were also given there of some of the counts actually made in diseased animals.

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Clinical Laboratory Methods for Use in the Diagnosis of Animal Skin Diseases

(*By* J. W. H. HOLMES, M.R.C.V.S., D.V.S.M., Royal Veterinary College, London)

A short talk on the microscopic confirmation of the various forms of mange was followed by a practical demonstration of the sedimentation and sugar flotation techniques. It was shown that the latter method has the big advantage of concentrating the parasites into a very small area for microscopic examination.

The three forms of ringworms (Favus, Trichophytosis and Microsporosis) were discussed with special reference to differential diagnosis and microscopic confirmation. It was noted that in the dog the microsporon lesion may readily be confused with a circular patch of the squamous form of follicular mange, but that differentiation is relatively easy by the application of laboratory methods.

Special reference was made to microsporosis as occurring in the cat. It was observed that this animal may act as a carrier of the disease showing no symptoms on ordinary clinical examination. Suspicion arises when in-contact people or animals develop the disease. Another form of the disease described as occurring in cats is the accumulation of pin-head sized pieces of cigarette ash-like scale on the surface of the skin, while it was noted that kittens occasionally develop a circular lesion similar to that observed in other species.

A demonstration of the use of Wood's glass in the diagnosis of microsporosis was given. Wood's glass contains nickel oxide and is used in conjunction with a U.V.R. lamp operated in a darkened room. Hair affected with microsporosis shows a characteristic yellowish-green luminosity resembling the hands of a luminous watch. The lamps used for this demonstration were specially prepared for the Congress by Messrs. Arnolds.

The carcase of an affected cat and several tubes of diseased hairs were exhibited. Normal hair and hair from cattle affected with Trichophytosis were shown for comparison. The whitish purple luminosity of vaseline was also demonstrated.

It was suggested that Wood's glass should be used to pick out material, but that results should be checked by microscopic examination. The method was stated to be of great assistance, particularly in dealing with the disease as encountered in cats.

The demonstration included a variety of mounted microscopic preparations of parasites illustrated by photomicrographs and also photographs of disease lesions.

Arnold Diagnostic Lamp. Model No. 2.

Table Model fitted with new Incandescent Cathode Quartz Mercury Vapour Burner with push button starting control unit. The quartz burner is housed in a polished aluminium reflector, fitted with universal turn-table permitting the reflector to be placed at any desired angle.

Complete with Wood's glass filter of large size connecting cables with combined plug and socket fitting for use with wall plug or electric lamp holder.

For use on alternating or direct current supplies, from 200 to 250 volts. *Price* £24.

The localising mask with Wood's glass filter is removable, and the Lamp is then available for use for treatment purposes.

Following is a copy of the notes enlarging on the demonstration given to members attending.

. . . . .

Experience has shown that the majority of animal skin diseases are external in origin and that the most important causal factor is parasitic. The methods which may be adopted for the demonstration of the various skin parasites are therefore of prime importance.

The following reasons show that it is preferable for the clinician to make his own microscopic examination rather than to submit material to a laboratory:—

(1) When the examination proves negative more material may at once be obtained.

(2) There is no delay in waiting for a result.

(3) The routine examination of skin scrapings is probably the best means of increasing the clinician's skill in diagnosis of skin diseases.

(4) The microscopic confirmation of a diagnosis greatly adds to the pleasure and confidence in the treatment of a patient.

The Equipment Required.—The following list of equipment at first glance appears a long one, but on close study it will be found that the bulk of it is included in most practices, or that the missing articles may be obtained at small cost.

(1) A microscope with a 2/3rd and 1/6th objective and preferably fitted with a mechanical stage.

(2) A centrifuge.

(3) An ultra violet ray lamp fitted with a Wood's Glass for the diagnosis of ringworm. This may appear in the nature of a luxury, but in small animal practice it is one of our most valuable aids to diagnosis. (See later under Ringworm.)

(4) Epilation forceps, Whitfield's pattern, stainless steel.

(5) Used Bard-Parker blades stored in spirit. (Alternatively a scalpel.)
(6) Test tube rack.
(7) A supply of test tubes. A convenient size is 6 in. by ¾ in. with a lipped top.
(8) A supply of centrifuge tubes to fit the machine.
(9) A test tube brush.
(10) A supply of home-made glass pipettes. (7mm. glass tubing is suitable for this purpose.
(11) Teats to fit pipettes.
(12) Microscopic slides.
(13) No. 2 square cover glasses, ¾ in.
(14) No. 2 circular cover glasses, ½ in. diameter.
(15) A glass rod about 6 in. long, near to one of end of which there is attached a unilaterally projecting piece of plasticine ½ in. by ¼ in. approximately.
(16) A Bunsen burner or gas ring.
(17) A saucepan, a steriliser for sterilising forceps, knife blades, etc.
(18) A luting iron. This is simply a metal rod about ¼ in. diameter, shaped like a letter L, the long arm being 5 in. to 6in. and the short arm 1 in. approximately. It may easily be prepared from a metal meat skewer.
(19) Liq. potassae.
(20) Sugar solution. This stock solution is prepared by dissolving 1 lb. of sugar in 12 oz. of water with the assistance of heat.
(21) Lactophenal. The formula for this is lactic acid one part, carbolic acid crystals one part, glycerine two parts, water one part.
(22) Noyer's cement. This is prepared by melting together lanolin one part with resin four parts.

The Technique to be Adopted

This is discussed under headings according to the type of parasite. A few brief notes on symptomatology and differential diagnosis are included in some instances to make the actual technique of laboratory examination more readily understandable.

(1) Follicular Mange

This disease, while it does occur in other animals, is in this country only of practical importance in the dog.

Symptomatology.—The age of the patient is an important feature. It is usually the animal under one year old that is affected. There are two types, (*a*) the squamous form, and (*b*) the pustular form.

(*a*) *The Squamous Form.*—There is loss of hair due to falling out, not to breaking off of fibres. The loss may be diffuse and cover large areas, or it may be confined to small patches. The skin becomes thickened and scaly and often acquires a slate blue coloration. There is, as a rule, little irritation.

(b) *The Pustular Form.*—This has all the features of the squamous form, but in addition there develop small pin-head to millet-seed sized acuminate pustules in the hair follicles (acne). In some instances, pustulation becomes so advanced that channels form in the skin (furunculosis).

Differential Diagnosis. — The most important disease in this connection is ringworm (microsporon type) which may be confused with a circular patch or patches of the squamous form of follicular mange. In ringworm, broken stumps of hair are present and in the majority of cases there is a history of owners or in contact animals being affected. The application of laboratory methods should readily differentiate.

Alopecia of internal origin (? thyroid) may in the character of the local lesion resemble the squamous form of follicular mange. The lesions are, however, generally bilaterally symmetrically arranged. The patient is as a rule more mature than the usual follicular mange patient and scrapings are negative.

Acne resemble the pustular form of follicular mange but examination of pus proves negative for parasites.

Tne Examination of Scrapings.—The parasite is usually easily demonstrable. In the pustular form all that is necessary is to express the contents of a pustule, place on a slide, mix with a little liq. potassae and cover with a square cover glass. Examination is carried out with a 2/3rd objective, partially closing the diaphragm of the condenser to cut down the light. A 1/6th objective is used for confirmation.

In the squamous form, liq. potassae is applied to a lesion by means of a cotton wool swab. A scraping is then taken going sufficiently deep to produce a red oozing surface. The material is placed on a slide and covered with a square cover glass. A little gentle heat is then applied to clear the specimen, prior to microscopic examination.

When the above examinations prove negative it may be desirable to carry out the sedimentation or sugar flotation technique as described under sarcoptic mange.

Distinguishing Features of the Parasite.—A small cigar-shaped parasite. The adult form possesses four very stumpy legs on either side near the anterior or wider end. The larval stage has only three legs on either side. The egg is small and lemon-shaped.

(2) Sarcoptic Mange

Symptomatology. (*a*) *General.* — A constant feature in any species of animal affected is the presence of marked irritation as shown by scratching, rubbing or biting. A history of several in-contact animals similarly affected is suspicious of the disease; while there is often a history of in-contact people being affected with an irritant skin eruption resembling gnat bites.

It is the dog which is most frequently affected and for this reason the symptoms in the animal will be described more fully. The dog is also adopted as the standard animal for the description of the technique of examination of scrapings, the same general methods being employed in other animals.

(*b*) *Symptomatology in the Dog.* — There is marked irritation and a moth-eaten appearance results from loss of hair on various parts of the body consequent upon rubbing and scratching. Scratch marks are often present behind the elbows. The ear presents the most diagnostic appearance. The patient, even in early cases, shows a marked scratch reflex, kicking with the hind leg of the same side when the posterior edge of the ear is rubbed or examined by palpation. There is present here a pinhead-sized yellowish brown scab, almost like particles of sand. Pinhead to millet seed-sized papules and papules covered with blood caps are present in varying numbers on other parts of the body. They are particularly numerous in the axillae and on the outer surface of the tibial region.

The Examination of Scrapings.—The choice of site from which to obtain material is very important. Undoubtedly in the dog, when lesions are present on the posterior edge of the ear near the double fold, this is the best position. In other circumstances, non-excoriated papules

should be chosen. The hair over the area is plucked out with epilation forceps and placed in a test tube containing liq. potassae. The site is next moistened with the same liquid applied by means of a cotton wool swab, after which a scraping is taken, going sufficiently deep to produce a red oozing surface. When the area chosen is large, or if there is copious scab, the superficial material is placed in the test tube. The deep scraping is placed on a slide, mixed with a little liq. potassae, covered with a square cover glass and gentle heat applied. Examination is made using a 2/3rd objective, a 1/6th being used for confirmation.

There are two other methods, either of which may be adopted when the above examination proves negative. These methods are also suitable for occasions when material is collected from a patient away from the laboratory.

(*a*) *The Sedimentation Technique.*—Scrapings are taken from several areas, the material being placed in a test tube containing liq. potassae. Boiling is then carried out until all the hair and scab is broken up, giving a homogeneous syrupy liquid. This is next centrifugalised, about one hundred turns of a hand centrifuge being adequate. The supernatant fluid is pipetted off, the deposit being placed on several slides and covered with square cover glasses prior to microscopic examination.

The disadvantage of this method is that it may be necessary to examine three or four slides, each with a relatively large area of ¼ in. square. It is for this reason that the following technique, introduced by Sheather, is to be preferred.

(*b*) *The Sugar Floatation Technique.* — The material is collected and boiled in liq. potassae as before (*a*). It is also centrifugalised and the supernatant fluid pipetted off. The centrifuge tube is then half filled with water and after shaking is completely filled with sugar solution. A thumb is placed over the mouth of the tube and mixture ensured by inverting several times. Centrifugalisation is again practised, 50 turns of the hand centrifuge being adequate. Any contained parasites or eggs will, as a result of this treatment, have risen to the surface. The next step is to take the glass rod and plasticine described in the list of apparatus. The free extremity of the plasticine is pressed firmly against the upper surface of a No. 2 circular ½ in. cover glass which can, as a result, be readily lifted. The cover glass is now gently manipulated so that it just touches the surface of the liquid in the test tube. The cover glass with the drop of fluid adhering is now placed on a slide prior to examination under 2/3rd and 1/6th powers. It is desirable to prepare two such specimens, placing both cover glasses on one slide.

Distinguishing Features of the Parasite.—(See table.)

(3) Notoedric Mange in the Cat

The parasite responsible for the disease is very closely allied to the sarcopt (see table) and in consequence the condition is often spoken of as sarcoptic mange.

Symptomatology. — There is marked skin irritation. In-contact cats or people may be affected. The most common site of this disease is on the head, although lesions may be observed on any part of the body. There is scab production and loss of some fur, due to rubbing and scratching. The forehead often develops a furrowed appearance.

Examination of Scrapings. — The parasite is easily demonstrable using any of the techniques described under sarcoptic mange.

Distinguishing Features of the Parasite.—(See table.)

Summary of the Distinguishing Characters of Mange Mites.

Genus.	Body.	Rostrum.	Legs.	Suckers.	Position of Suckers.		Other Remarks.
					(*a*) Male.	(*a*) Female.	
Sarcoptes	Round	Square	Front 2 pairs long while the posterior 2 pairs are short and do not protrude past body margin	On pedicle long and unjointed	On 1st, 2nd and 4th pairs of legs	On 1st and 2nd pairs of legs	
Notoedres	,,	,,	,,	,,	,,	,,	Anus dorsal in position, not terminal as in sarcoptes
Cnemidocoptes	,,	,,	,,	,, (when present)	On all pairs of legs	Not present	
Psoroptes	Large and ovoid	Very pointed and conical	All 4 pairs protrude past body margin	Pedicle consisting of 3 joints	On 1st, 2nd and 3rd pairs of legs	On 1st, 2nd and 4th pairs of legs.	
Chorioptes (Symbiotes)	Large and ovoid	Blunt	,,	Large and without pedicle	On all 4 pairs of legs	,,	
Otodectes	,,	,,	,,	,,	,,	On 1st and 2nd pairs of legs only	

It will be seen that there are three principal genera, *viz.* Sarcoptes, Psoroptes, and Chorioptes, and that the Cnemidocoptes and Notoedres are very closely allied to Sarcoptes while Otodectes closely resembles the Chorioptes.

Hay mites, which are commonly found on skin scrapings, may in general be distinguished by their more hairy character and the possession of small claws in place of suckers.

(From the author's article in Wooldridge's *Encyclop. of Vet. Med. Surg. and Obstet.* Vol. I.)

(4) Psoroptic Mange

This particularly affects sheep (sheep scab) and the horse.

Symptomatology.—The essential features are a number of animals affected showing marked skin irritation. The hair or fleece is broken consequent upon rubbing. Scab is present, generally of a yellowish nature.

Examination of Scrapings. — The method of examination is to carry out either the sedimentation or preferably the sugar flotation technique as described under sarcoptic mange.

(Note.—Rabbits may be affected with psoroptic mange of the external ear. This shows as a greyish brown waxy material in the ear. A little of the material mixed with liq. potassae and covered with a cover glass is found on examination to be full of parasites in all stages.)

Distinguishing Features of the Parasite.—(See table.)

(5) Symbiotic Mange

The best example of this is seen in the horse (itchy legs).

Examination of Scrapings.—Proceed as described for sedimentation or sugar flotation methods under sarcoptic mange.

Distinguishing Features of the Parasite.—(See table.)

(6) Otodectic Mange

This is particularly common in cats. It is occasionally encountered in the dog.

Symptomatology.—The patient shakes the head and rubs the ears. Haematomas of the ear flaps may result. The ear is found to contain a brown waxy material in which the parasites can usually be seen on naked-eye examination.

Examination of Material.—A slide may be prepared by simply taking a little of the material, mixing with liq. potassae, covering with a cover glass and clearing by the application of gentle heat.

Distinguishing Features of the Parasite.—(See table.)

(7) Cnemidocoptic Mange in Poultry

Two forms of this are noted (1) scaly leg, (2) feather picking.

Examination of Scrapings.—The direct examination of scrapings may be carried out, or preferably the sugar flotation or sedimentation method may be adopted.

Distinguishing Features of the Parasite.—(See table.)

(8) Ringworm

The mycologist is able by cultural methods to discover a large number of different fungi as being responsible for this condition. There are, however, from a clinical point of view, three forms of ringworm, (*a*) favus, (*b*) microsporosis, and (*c*) trichophytosis.

(*a*) Favus.

This form of the disease is seen in the cat and dog particularly. It also occurs in rats, mice, poultry, and in man.

Symptomatology. — The lesions vary in size from that of a millet seed to that of a split pea, or larger. The individual lesion is a thick raised circular sulphur yellow scab, with a darker depressed centre. When affecting the base of a nail in the cat, the circular shape is lost and the lesion takes the form of a heaped crescent of yellow scab.

Examination of Scrapings.—The technique is simple. All that is necessary is to take a pin-head-sized piece of the scab, place on a slide and mix with a little liq. potassae. A cover glass is applied and after clearing by warming examination is carried out using a 1/6th objective, cutting down the light.

Distinguishing Features of the Parasite.—In films prepared as above, branched threads are seen as well as refractile spores.

(*b*) Microsporosis.

This may be encountered in any species. It is often seen in the dog. The disease as seen in the cat varies from the usual form and will be specially discussed later.

Symptomatology. — There is frequently a history of several in-contact animals being similarly affected. When seen in the dog, there is almost always a history of spread to man.

The individual lesion is circular and varies in size from ¼ in. to 1 in. in diameter. There is a loss of hair with some broken stumps remaining. The skin is slightly thickened and scaly.

Differential Diagnosis.—See the squamous form of follicular mange.

Microsporosis in Cats.

The cat may act as a carrier of the disease, no symptoms being noted on ordinary clinical examination. The presence of the disease is only suspected in these instances when in-contact people or animals become affected. When symptoms are present in the cat, all that is generally seen is a varying number of pin-head to millet seed-sized deposits of cigarette ash-like scales on the surface of the skin. Occasionally in young kittens typical lesions as described in other animals are observed.

Examination of Scrapings.—A single broken hair should be removed by means of epilation forceps. (It is of service to throw the skin of the affected area into a fold between the thumb and finger and use a watchmaker's lever to search for the broken hair.) The hair is placed on a slide with a little liq. potassae, covered with a cover glass and cleared by gentle warming. Examination is carried out, using a 1/6th objective, cutting down the light.

An alternative method is to take mixed material by scraping and to proceed as described under the sedimentation technique for sarcoptic mange.

Distinguishing Features of the Parasite.—The broken ringworm hair has a typical appearance under the microscope. It is frayed at the ends and has a fibrous appearance. Greenish refractile spores are seen on, in and around it. The spores under 1/6th in. power appear about the same size as cocci under 1/12th in. objective. Hyphae are seldom seen.

The Use of Wood's Glass in the Diagnosis of Microsporosis

Wood's glass is a specially prepared glass impregnated with nickel oxide. It is used in conjunction with an ultra violet ray lamp.

The examination is made in a darkened room. The patient or the scraping to be examined is held near to the lamp, diseased hairs being revealed by a characteristic yellowish-green luminosity resembling the dial of a luminous watch. It is important to realise that it must be a hair which fluoresces as many normal scales found on the surface of the skin show a whitish purple luminosity. It is also to be noted that vaseline similarly fluoresces under Wood's glass. It is a wise plan to use Wood's glass to facilitate the picking out of suitable material and to check off results by microscopic examination.

The value of this method of examination is very soon appreciated when a number of cats showing no clinical symptoms have been proved to be affected with the disease.

Wood's glass is of no value in the diagnosis of trichophytosis.

(*c*) Trichophytosis.

This is typically the form of ringworm observed in cattle, although it may be seen in other species and it readily spreads to man.

Symptomatology.—The lesion is circular and often up to the size of a 5s. piece. There is loss of hair with broken hair stumps remaining, held together in a thick scab. When the scab is removed small sinuses oozing blood-stained pus are seen.

Examination of Scrapings.—The direct examination of a broken hair or the sedimentation technique may be adopted.

Distinguishing Features of the Parasite.—The microscopic appearance does not differ in essentials from that seen in microsporosis. There is a broken fibrillar hair and refractile spores.

The Preparation of Permanent Specimens

When for legal purposes, or as a matter of interest, it is desired to make permanent specimens, the following simple technique may be adopted.

The scraping is taken using lactophenol as a mounting fluid in place of liq. potassae. Noyer's cement is then applied round the edge of the cover glass by means of a hot luting iron. (See list of apparatus.)

* * * * *

Radiology Section

The Provisional Committee of the Glasgow Congress, most effectively and painstakingly represented in this connection by Wm. L. Weipers, M.R.C.V.S., D.V.S.M., of Glasgow, arranged to give a demonstration of radiographs of interesting abnormal conditions relating to veterinary practice, and it was originally hoped to contrast these films with normal photographs taken in the same position. Various difficulties arose rendering it impossible to retain the original object. Very few veterinary surgeons had normal radiographs, and even when these could be got it was realised that the slightest variation in position or difference in size invalidated the comparison. The radiographs were collected from the members of the profession who have made a special study of X-rays. It was originally intended to allow the exhibit to stand during the entire Congress week, but owing to space restrictions it was necessary to change some of the films once or twice during the course of the week. This collection was quite representative, and some excellent examples were shown of horse radiographs, the clarity of which was such as to surprise anyone used to what was considered a good equine radiograph a few years ago, and demonstrated the advance that has been made in the course of the last few years. While it would be invidious to select any group for detailed notice, it may be mentioned that Major Oxspring's prints of limb conditions in horses were truly excellent. Mr. Berwyn Jones had also prepared a series of prints which overlapped some of the ground demonstrated by him in his lantern lecture (*vide infra*) and were useful to anyone who wished to study at leisure some of the points he raised.

Major Hamilton Kirk's admirable prints, some of which had already been shown at the Bournemouth Conference, were again demonstrated, as it was felt that there would be many people at the Glasgow Congress who had not had an opportunity of seeing them previously. The other contributors also had taken an amazing amount of pains and the general quality of the films was excellent.

The contributors to this exceedingly interesting and valuable section of "Demonstrations" were as follows:—

Mr. A. L. Bartholomew (Darlington), Captain G. Bloxome (Southwick), Messrs. W. L. Cockburn (Liverpool), H. J. Ede (Epsom), H. R. Hewetson (Southport), V. Berwyn Jones (Guildford), Major Hamilton Kirk (London), Major G. E. Oxspring (Ashford), Messrs. A. E. Payne (Weybridge), A. F. Ritchie (Belfast) [prepared by Dr. Boyd], Captain J. C. Rix (Sidcup), Messrs. A. H. Robb (Glasgow), A. Thomson (Glasgow), Captain J. F. D. Tutt (Winchester), Major R. J. Wall (Boxmoor), Mr. W. L. Weipers (Glasgow), Professor J. G. Wright (London), and Captain T. L. Wright (Putney).

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Lantern Lecture on Radiology. (By V. Berwyn Jones, M.R.C.V.S., Guildford.)

In contributing this much appreciated feature to the proceedings at the Glasgow College on the afternoon of Tuesday, September 6th, Mr. Berwyn Jones said: The subject of veterinary radiology, and equine radiology in particular, is one that has interested me now for a number of years, and it is because I have the honour to claim to be a pioneer amongst veterinary practitioners in this branch of work that I am able to show you how far the work has advanced in general technique, and what useful results can now be produced. The credit for the advances in what I might term "photographic" technique is due very largely to the makers of radiographic apparatus and to the technical staff of the firms that concern themselves with the manufacture of radiographic material. The present-day X-ray machine and the accessory manoeuvres and manipulations necessary to produce a radiograph are now so simplified that, with a few provisos, one has to do little more than press the button.

Provided that—and this is a very important proviso—the X-ray machine is sufficiently

powerful to produce rays capable of penetrating the structure, the only difficulty that now remains for the radiographer is that of what is termed "positioning." Unless the structure to be X-rayed is correctly aligned according to its anatomical position in relation to the rays, a distorted picture will be obtained that is impossible to interpret. Correct positioning is essential. It is also in a number of instances necessary to have both antero-posterior (A-P) and lateral views: these views must be *true* lateral and *true* A-Ps.

The remaining essential is an adequate and correct interpretation and this is the sphere of the radiologist, as distinct from the radiographer. To interpret a radiograph correctly, particularly of navicular disease, it is essential that all the general radiographic postulates shall have been fulfilled; briefly, it must be a first-class radiograph taken at the correct angle.

It is not possible for the ordinary practitioner to read such a picture without some expert tuition, for the eye has to be educated to appreciate the normal radiographic density of bone and to know the nice difference between, for example, a caries shadow and one superimposed on, or not belonging to that bone. Those of you who are fishermen will no doubt have been amazed at the ineptitude of the tyro in "spotting" a trout at rest in the water, against a dark background. If the position of the trout is pointed out, the amateur will exclaim, "Of course, I see him now." In dry fly fishing as in radiology, the eye has, to some extent, to be educated.

From the little I have said, you will see that in my view there are now two distinct branches of veterinary X-ray work, veterinary radiography and veterinary radiology. Radiography is now possible to any man of average intelligence. It is not necessary for him to be mechanically-minded nor is it essential that he should have any deep knowledge of electricity. On the other hand, to presume to be a radiologist presupposes a wide experience and a true knowledge of the anatomy and pathology of the part to be X-rayed—a knowledge used without calling upon the imagination for assistance. Radiography is now the job of the intelligent mechanic. Radiology is the job of the qualified specialist.

I have perhaps been labouring this point, but my purpose has been to draw attention to the facts, because it is quite incredible the number of diseased or abnormal conditions that have been attributed to a perfectly normal picture by radiographers. I regret to say that in the Congress display of radiographs there are a number of pictures, with legends attached, that confirm my previous statement.

In this way, veterinary radiography, particularly equine radiography, has not earned for itself the good name that it should, nor has it yet been made use of by the profession to the extent that its usefulness merits.

I cannot conclude without rendering my thanks to Mr. Ottaway, who very kindly wrote the titles for me. We had an argument on anatomical nomenclature, in which I was worsted, and in revenge, I delegated this work to him.

I thank you for your interest and attention.

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The Technique of Nerve-Blocking for Dehorning Cattle

(*By* Professor T. G. BROWNE, M.R.C.V.S., Dublin)

In giving the demonstration, Professor Browne revealed the nerve supply to the horn in a dissection of the head of an ox. This nerve is a branch of the 5th cranial and ascends from the back of the orbit to the horn, resting on the temporal muscle, almost immediately behind the lateral ridge of the frontal bone. It becomes more superficial as it ascends until at the last inch or more of its course below the horn it is almost subcutaneous being covered here only by skin and a thin layer of panniculus. In blocking this nerve, the site at which the local anaesthetic should be injected is about 1 inch below the root of the horn immediately behind the lateral ridge of the frontal bone. This ridge of the frontal bone can be easily made out ascending from the orbit to the base of the horn. It is important to make the injection subcutaneous, because if the needle be allowed to perforate the underlying aponeurosis which here covers the temporal muscle the anaesthetic will be injected into this muscle and will fail to block the nerve. If the injection be made ¾ of an inch deep at a point midway between the horn and the orbit as recommended by some authors failure will result in many cases. Any local anaesthetic may be used. The operator usually uses Parsetic and injects about 5 c.c. over each nerve. This anaesthetic requires 10 to 15 minutes to acquire its maximum action, but the action will continue for half an hour or more. In the case of large animals with large horns it is advisable to make a second smaller injection about ½ inch behind the main site in order to block any branches of the nerve which may come off below the point of injection.

The nerve to the horn also supplies the upper part of the head so that when this nerve is blocked the upper part of the skull is anaesthetised and it is actually this part of the skull which is cut in the ordinary cases of dehorning.

The horn is removed with the saw, the operator standing either in front of or behind the animal's head. The animal is controlled by a ring in the nose having the head resting

on a fixed support such as a cross-bar across a doorway. One of the disadvantages of this method of dehorning is that the animal requires to be caught and restrained on two occasions, first for the injection and then after about 15 minutes for the operation, but in doing numbers of animals waste of time can be obviated by taking the animals in batches of four or five when two to fifteen animals per hour can be dealt with provided three or four assistants are available. It is important to have the animals enclosed in as small a space as possible or tied up in stalls in order to avoid excitement in recatching the animals for the operation. There is no bruising or crushing of the tissues when the saw is used and there is usually very little haemorrhage.

According to the Animals Anaesthetic Act the operation of dehorning cattle must be carried out under a general anaesthetic so that the operator was unable to carry out the sawing off of the horns in the live animal.

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Demonstrations on Spinal (Epidural) Anaesthesia in Cattle and Horses

(*By* Professor T. G. BROWNE, M.R.C.V.S., Dublin)

In giving these demonstrations, Professor Browne explained the technique with the aid of anatomical specimens and carried out the injections on live animals. He has given these demonstrations at the Congresses of the National Veterinary Medical Association in 1935 and 1936, and an account of his technique will be found in the Congress Numbers of the *Veterinary Record* for these years.

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Dr. Provost's Embryotome

A welcome visitor to Congress was Dr. Provost, of Ecommoy (Sarthe) France, who gave a demonstration—an interesting addition to the published programme—illustrating the use of his "embryotomy crusher" on a foetus placed at his disposal for the purpose by the Glasgow Veterinary College.

Dr. Provost, in the course of some introductory observations, conveyed through an interpreter, first expressed his thanks to the Principal for the courtesy mentioned above and also to Messrs. Willows, Francis, Butler and Thompson, Limited, for having acted as intermediaries.

"My foetus crusher," he continued, "was demonstrated to all French veterinary surgeons in 1935, and at this moment more than one-third of them are using it. Booklets containing instructions, references and observations are at the disposal of those who desire them.

"I desire to demonstrate this to you personally because at first sight one may doubt the efficiency of the machine in spite of the said references. It appears to be too heavy and the cable appears to be too thick to cut. Actually, weight does not enter into the question, and the machine is worked by an assistant and introduced into the uterus according to the instructions of the operator, who directs it with his hands. The cable makes it possible to deal with all kinds of amputations. One cable may be used for 10 or 15 amputations and at times up to 20.

"I will, in the first place, demonstrate to you the amputation of a hind leg in a posterior presentation—an operation which is very difficult with most other crushers—secondly, amputation of a fore leg in anterior presentation, and finally detruncation."

Following is an illustration of the instrument, which was awarded the Bronze Medal by the French Academy of Veterinary Surgery, 1936, and the Gold Medal, Concours, Lepine, Paris, 1936.

The apparatus is a very powerful crusher, weighing five kilogrammes (about 11 pounds).

Section is obtained by means of a special steel cable which is as flexible as a string.

With this apparatus all kinds of section are possible, no matter what the cutting angle of the cable.

The apparatus is delivered with a profusely illustrated guide describing the various techniques.

Price of the complete apparatus, including packing and carriage: £8 12s. 6d. Obtainable from Messrs. Willows, Francis, Butler and Thompson, Ltd., 89a, Shacklewell Lane, Dalston, E.8.

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Methods for Detection of Open Tuberculosis

(*By* J. S. STEWARD, F.R.C.V.S., D.V.S.M., Maidstone)

The routes of excretion of tubercle bacilli and the percentage of positive results following the microscopic examination of the different specimens were demonstrated.

The methods of obtaining and dealing with the samples so obtained were also shown, with particular reference to the concentration and cultural methods of examining expectorate and glandular and uterine discharge.

Photographs, preserved specimens and microscopic preparations were exhibited showing the different types of infection occurring in cows and their exact diagnosis.

Fowl Paralysis

(*By* J. E. WILSON, B.Sc., M.R.C.V.S., Department of Poultry Diseases, Royal (Dick) Veterinary College, Edinburgh)

The demonstration consisted of stuffed birds showing the symptoms, namely, clutching appearance of the toes, drooping of the wing, general paralysis, iritis, etc.

A series of museum specimens showed lesions found at *post-mortem* examination. In some specimens, the disease was present in the early stages, the enlargement of the nerves being scarcely noticed, whereas in the later stages the affected nerve was many times greater in size than the normal.

A full range of lesions was demonstrated, one specimen showing involvement of both vagi nerves, the splanchnic nerve, left brachial plexus, subcutaneous tumours and tumours affecting the ovary and kidneys. Another series of specimens showed tumours affecting the various organs, including the ovary, kidneys, liver and intestines.

Microphotographs were shown depicting the disease in its earliest and most advanced stages.

MAJOR BRENNAN DEVINE (INCOMING PRESIDENT, N.V.M.A.): MR. JAMES MARTIN, SENR.

The Veterinary Exhibition

ATTRACTIVE DISPLAY OF DRUGS, INSTRUMENTS AND APPLIANCES

The holding of an "exhibition within an exhibition" was a novel experience for the N.V.M.A. and its success may be gauged from the fact that, in point of appeal to the members, the display of drugs, instruments and appliances was put at no disadvantage by the proximity of the wonderful revelation of Empire which, however, held no such parallel professional interest.

The exhibits were effectively arranged, by the representatives of the firms concerned, on a fine array of stands in two capacious committee rooms flanking the entrance hall of the place of meeting. Both were convenient of access and throughout the week were the centres of much interest and gratifying business activity.

Opening by the President

The Exhibition was opened by the President at the entrance to the Concert Hall, immediately following the Civic Reception, on the morning of Monday, September 5th.

The PRESIDENT (Capt. Donald Campbell), in declaring the Exhibition open, said: One of the earliest duties which fall to the President of our Association at our Congress time is the official opening of the Exhibition of Drugs, Instruments and Surgical Appliances. This exhibition has become a feature and a very popular feature of our Congresses. The Exhibition is a place where we all meet informally, inspect the exhibits, exchange experiences and reminiscences, and meet our friends who represent the firms exhibiting products and instruments. In a comparatively small profession such as ours—because, in spite of the importance which has been rightly stressed this morning, we cannot really claim that we are a very large body, although we are growing—one of the advantages is that a certain friendly relationship exists between ourselves and the firms represented here this morning. The relationship is not merely that of cold business transactions. Speaking for myself—and I think in this I can speak for everyone—I always look forward with pleasure to receiving visits from the representatives of the various firms—a pleasure which is qualified usually by the fact that I have to pay them an account. (Laughter.) However, I appreciate the way in which they receive the account, when they get it. (Laughter.)

I have not yet had the pleasure of going through the Exhibition, but I hope to go through it very shortly and inspect what is there exhibited. I am sure that it will be instructive and interesting to all of us. I hope

that the firms who are represented in it will be satisfied with the attendance of the customers and prospective customers. Long may their representatives be able to call on us and maintain the friendly relationship which has existed for many years. Long may we be in a position to give them orders when they come. Ladies and gentlemen, I have great pleasure in dclaring open the Exhibition of Drugs and Instruments. (Loud applause.)

Miss Jeanette Mackie, the charming little niece of the Local Secretary, on behalf of the Exhibitors, presented to Mrs. Donald Campbell a beautiful bouquet of dark red roses and white heather.

Mrs. Donald Campbell, in accepting the gift, thanked the Exhibitors and expressed the hope that they would have a very successful sojourn at the Congress.

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The Stands

Anglo-American Pharmaceutical Co., Ltd. (Galen Works, 59, Dingwall Road, Croydon), had on view an effectively arranged exhibit comprising medicines and preparations for dogs and other animals generally, including pessaries, bougies, powders, drenches, etc. There was a fine range of good-class products in great demand by the veterinary profession.

Antibody Products, Ltd. (Watford, Herts.), exhibiting at the N.V.M.A. Congress for the second time, showed an extensive range of products. Features of the display by this laboratory were "Antibacsyn" and "Antimalignyn."

Antibacsyn is an antibody stimulant consisting of euglobulin and portions of normal serum adsorbed to a special calcic magnesian saline by a complex process already described fully in medical literature.

This stimulation is non-specific and the preparation can be used in almost all endotoxic infections.

Antibacsyn was shown in oral form and also in ampoules for injection, the size of the ampoule varying according to the animal treated.

Antimalignyn represents a treatment by injection for carcinoma. During many years of cancer research carried out by this laboratory a difference was found to exist in the lipoid-globulin/cholesterol balance of cancerous sera as against healthy blood; thus antimalignyn has been evolved in an endeavour to correct this imbalance and so restore to the patient that entity presumably possessed by the healthy as a resistance against increased mitosis.

Armour & Company, Ltd., Armour House, St. Martin's-le-Grand, E.C.1, from their Laboratories displayed a full range of the "Glanoid" veterinary organo-therapeutic products prepared from fresh warm glands only, no frozen material whatsoever being used.

New products included a series of separated and psysiologically standardised fractions of the anterior pituitary gland, notably—

the gonadotropic (maturity) factors for the treatment of sterility in the male or female;

prolactin—the lactogenic factor responsible for the initiation of lactation;

the growth factor — responsible for proper skeletal development, and

polyansyn—a polyvalent extract containing all the hormones of the anterior pituitary gland,

preparations of the thyrotropic and adrenotropic hormones being available also.

All the various "Glanoid" materials and mixed gland products for oral use in veterinary practice are supplied in tablet and capsule form, the latter being available in appropriate sizes for the treatment of larger animals.

A series of "undefatted" total gland substances were also shown in "Glanule" form (a special type fused elastic capsule). The products presented in this form include ovarian whole gland, orchic and corpus luteum substances.

"Glanoid" *A.B.C.D. Vitamin Tonic "Glanules"* provide a combination of essential accessory food factors, supplying liver in high concentration together with the vitamins A, B, C, and D in standardised amounts.

Of the well-known "Glanoid" specialities used in veterinary practice, various "Glanoid" *spleen* preparations, for use in the treatment of eczema, grease and canker, were shown; "Glanoid" *suprarenalin solution* for use in surgery, and "Glanoid" *posterior pituitary extract* for obstetrical use.

Armour's Surgical Catgut Ligatures — Sterilised.—A range of the Armour sterilised ligatures was displayed, particular emphasis being laid on the fact that these ligatures are sterilised by a special "heat" process, no chemical means whatsoever being used. They are supplied plain and chromicised, boilable or non-boilable catgut.

In addition, a special feature was made of the Armour catgut sutures which are fitted with non-traumatic eyeless needles of very high temper. The use of these sutures reduces tissue damage to a minimum. All the eyeless needles have slightly flattened shanks so that minimum pressure holds them firmly in the forceps and prevents turning, and also adds greatly to the ease of handling in delicate surgery.

Unsterilised.—The Armour ligatures, both plain and chromicised, are supplied unsterilised for veterinary purposes, in hanks of 100 feet cut into 10 ft. lengths.

Arnold & Sons, Standard Works, Lawrence Road, Tottenham, N.15, had a great display of veterinary instruments and appliances, in particular an exhibit of ultra-violet ray lamps for treating non-parasitic skin diseases, rickets, and wounds. This lamp can also be used for immediate diagnosis of ringworm by the use of a Wood's glass which is easily attached to the lamp.

The lamps mentioned above were used by Mr. J. W. H. Holmes in his demonstration of clinical laboratory methods for use in the diagnosis of skin diseases, and in our account of that demonstration will be found illustrations of the various kinds of lamps employed, these being on show at the stand.

Bailliere, Tindall & Cox, 7 and 8, Henrietta Street, Covent Garden, W.C.2, report that very considerable interest was taken in the new edition of "Hutyra and Marek" which has for the first time been prepared in this country. An entirely new translation has been made which has been edited and adapted by Professor J. Russell Greig, with the collaboration of J. R. Mohler, D.V.M. and A. Eichhorn, D.V.S. Other books which drew much attention from the many callers at this stand were Benesch's "Veterinary Obstetrics," a very finely illustrated work of which an English edition by Professor J. G. Wright has just appeared, and the revised editions of Gaiger and Davies' "Veterinary Pathology and Bacteriology," Dollar's "Veterinary Surgery," and Mönnig's "Veterinary Helminthology and Entomology." A full range of veterinary works by all publishers was carried, which gave veterinary surgeons an opportunity of examining new works at their leisure. The *Veterinary Journal* again secured many new readers.

Burroughs Wellcome & Co., Snow Hill Buildings, E.C.1, showed an extensive display of fine pharmaceutical and biological products for use in veterinary practice. Amongst the many notable products of recent introduction, the exhibit of "Tabloid" and "Wellcome" Brand sulphonamide-P was examined with keen interest. Sulphonamide-P, which is also known as sulphanilamide, is now generally conceded to be the most effective of the chemotherapeutic substances which have been introduced for the treatment of haemolytic streptococcal and other infections. Its peculiar effectiveness suggests for it a wide sphere of usefulness in general veterinary practice, and already—it is claimed—there is sufficient clinical evidence to justify the trial of sulphonamide-P in bovine mastitis. It is thought that it may be employed with success in a variety of conditions, such as streptococcal pneumonia in foals, strangles, purpura haemorrhagica, streptococcal joint-ill and others. Good results have already been reported following its administration in the secondary infective conditions following canine distemper.

"Ryzamin-B" rice polishings concentrate is another important product. It consists of the cencentrated and purified vitamin-containing fraction of rice polishings which is recognised as a rich source of vitamin B. It has a potency of not less than 50 international units of vitamin B_1 per gramme, and is supplied in collapsible tubes as a syrup-like preparation, easy to administer. This rich preparation of vitamin B_1 has been introduced with considerable success into veterinary practice, and has won for itself much favour in the treatment of dogs and other small animals, particularly in conditions characterised by listlessness, loss of appetite and generalised asthenia, all common signs of vitamin B_1 deficiency.

Special interest was attached to the exhibit of a wide range of veterinary sera, serological products and vaccines, which are prepared at The Wellcome Physiological Research Laboratories and issued by Burroughs Wellcome & Co. Here "Wellcome" canine distemper prophylactics, method I (vaccine-virus) and method II (virus-serum), also "Wellcome" canine anti-distemper serum, therapeutic, attracted much attention, as did "Wellcome" feline infectious enteritis vaccine which has given satisfactory results as a prophylactic against feline distemper. Other preparations of note in this group included products for the prophylaxis and treatment of swine erysipelas, braxy in sheep, bovine epizootic abortion (*Br. abortus*) and infective jaundice of dogs.

Considerable interest was taken in the veterinary obstetrical products on view. These included preparations of ergometrine, "Ernutin" and "Infundin" pituitary (posterior lobe) extract. The employment of these preparations is rapidly increasing now that their value in veterinary practice is becoming properly appreciated.

Another noteworthy product shown was "Wellcome" calcium borogluconate which has achieved outstanding success in the treatment of milk fever. The rapid therapeutic effect of its injection in milk fever was lucidly demonstrated by means of a photoscopic display.

Other attractive features were "Agla" hypodermic apparatus, "Tabloid" hypodermic products, "Enule" suppositories and 'Soloid" products. An exhibit of insulin, used in diabetes mellitus in human medicine, added a

special spice of interest to this arresting display of modern advances in veterinary science.

W. & J. Dunlop, Ltd., 18, Bank Street, Dumfries, displayed 7 lb. tins of their special feeding bone meal and low temperature blood fibrinogen, as made up for the benefit of members of the veterinary profession for easy distribution amongst clients.

This firm also staged an informative exhibit illustrative of a wide range of abnormal conditions involving bones, comprising cow and sheep bones having periostitis, traumatic periostitis with abcess formation, ostitis, ankyloses, ulceration of the hock joint, arthritis and imperfect calcification. The demonstration of these examples of abnormal bones, due to faulty feeding or mineral deficiencies, appears to create very great interest amongst veterinarians wherever they are displayed.

Genatosan Limited, Loughborough, exhibited specimens of all their bacteriological products, which included the preparations of the Pasteur Institute (Paris), the Toulouse Institute of Serum Therapy (Leclainche and Vallée) and the Laigle Bacteriological Laboratory. The well-known general products of this firm, *viz.*, "Sanatogen," "Genasprin," "Cystopurin," "Fissan" brand Products, "Wulfing" brand formamint, "Genozo" brand tooth paste, etc., were also demonstrated and attracted considerable notice.

The principal products exhibited were :—

Nator B. (Bovine contagious abortion).—Composed of sterilised bacteria and is detoxicated ; in consequence, it is used either before or during gestation, without risk of infection. This vaccine has recently been the subject of favourable report (see *Veterinary Record*, August 27th, page 1109).

Diagnostic Tuberculin.—Prepared in the Pasteur Institute, Paris. Three types are issued—Subcutaneous, Intradermal and Avian. The new Intradermal Tuberculin is suitable for both the ophthalmic and intradermal tests.

Anthrax Vaccine and Serum.—The original Pasteur products, which are universally used with success.

Mulsor and Diamil.—For preventive vaccination and curative treatment of bovine mastitis. Mulsor is extensively used and in many districts proves efficacious ; in other parts of the country the vaccine is not so successful. No doubt this is due to variations in the causative organisms on account of differences in the chemical structure of soils.

Tregor.—For preventive and curative treatment of joint-ill, etc., in foals and calves.

Erysipelas Vaccines and Sera.—The products of the Pasteur and Toulouse Institutes.

Tetanus Sera.—Anti-tetanic sera for prophylaxis (3,000 International units) and curative treatment (10,000 International units) ; also the special Anatoxin prepared according to the method of Ramon and Descombey. This Anatoxin confers an active immunity which lasts at least two years. It is the method *par excellence* for systematic protection against tetanus in districts where the disease is endemic.

Blackleg Vaccines and Sera.—Prepared in the Toulouse Institute, according to the method of Leclainche and Vallée. For all ordinary purposes "Total Aggressin" is strongly recommended ; this product was the subject of good report at the International Veterinary Congress, and it has since proved remarkably successful in English practice. In cases where the cattle occupy extensive tracts of country or communication is difficult, Living Spore Vaccine (Liquid Form) is indicated.

Cytor.—A polyvalent vaccine for prophylaxis and treatment in surgical and cutaneous infections ; especially useful in cases of interdigital cysts in dogs.

Alvor.—Although primarily intended for the treatment of broncho-pneumonia in lambs and calves, this product has also proved valuable for cases of pulpy kidney in lambs (see *Veterinary Record*, Vol. xii, No. 13).

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We have been privileged to see extracts of correspondence which clearly show the efforts of Genatosan Ltd., to enforce their policy of restricting the use of bacteriological products to veterinarians ; this firm certainly deserves reciprocal support from the profession.

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"*Sanatogen.*"—Described as the "True Tonic Food," this preparation is a chemical combination of specially prepared casein and sodium glycerophosphate. It exhibits phosphorus and protein in forms which are readily assimilated by the animal organism.

"*Genasprin.*"—Pure acetyl-salicylic acid, in 5-grain tablets. Owing to a special process of tabletting, this preparation contains no trace of free acetic or salicylic acids or the other toxic impurities which frequently occur under ordinary methods of manufacture. On account of its purity "Genasprin" can be prescribed much more freely than other preparations of acetyl-salicylic acid, without any risk of unpleasant sequelae. It is particularly indicated in those hypersensitive cases which are frequently encountered in canine practice.

Stabilised Calcium Aspirin.—Stabilised calcium aspirin ("Genasprin" brand) is soluble and neutral in reaction. It is specially recommended for cases in which acetyl-salicylic acid medication is contra-indicated.

"*Cystopurin.*"—A chemical combination of hexamine and sodium acetate. This preparation acts as an efficient and non-irritating urinary and biliary antiseptic. It exercises a marked sedative effect on the urinary tract, which quickly results in normal micturition with a rapid lessening of the bacteriuria. "*Cystopurin*" is indicated in all cases where the action of hexamine is required without its disadvantages. It is used successfully in all diseases of the genito-urinary tract.

"*Fissan*" *Brand Products.*—These preparations were originally introduced for use in human cases, but it has been shown that the "Fissan" principles are equally applicable to veterinary practice. "Fissan" lotion and oil have proved particularly useful for the treatment of eczematous conditions in dogs. Good reports have also been received following the use of "Fissan" anal ointment and suppositories in canine cases.

The International Serum Co., Ltd., Phylax House, Norwich, featured again at their stand a comprehensive range of veterinary biologicals.

Especial interest was shown in abortus-chinosol vaccine, a new type of vaccine for the prevention and treatment of bovine contagious abortion which has been used with considerable success on the Continent and is being increasingly employed in this country.

For the treatment of pig diseases, their well-known erysipelas serum, swine plague-paratyphoid serum and swine fever serum were again exhibited.

Other products given prominent display were lamb dysentery serum and vaccine, homologous distemper serum, homologous coli serum and distemper serum for cats.

Lamb dysentery serum (I.S.C.) is a valuable product for the prevention of lamb dysentery. The serum contains antitoxins capable of neutralising the toxins produced by *Cl. welchii* Type B in all phases of its growth. Lamb dysentery vaccine is prepared from formalised whole cultures of the lamb dysentery bacillus.

Homologous distemper serum is made in dogs which have been hyper-immunised with virus and the secondary organisms, and is therefore claimed to be effective against the whole complex of the disease, as is homologous coli serum in the bowel form of distemper.

Cat distemper (infectious enteritis) serum has proved extremely useful as a protective and curative agent in this disease.

Other products exhibited included braxy vaccine, pneumonia serum (bovine and equine), blackleg aggressin and haemorrhagic septicaemia serum for cattle and sheep.

C. J. Hewlett & Son, Ltd., Charlotte Road, London, E.C.2, as usual had a most comprehensive display including pharmaceutical preparations, surgical instruments and the latest biological products, which attracted considerable interest and attention.

Elixir Vitaminae (Hewlett's) is an efficient tonic elixir, equivalent therapeutically to a mixture of the finest cod liver oil and chemical food made by a modern homogenising process and containing vitamins A and D, glycerophosphates, organic iron and calcium with traces of copper and manganese. It is a deliciously flavoured preparation which has been found invaluable in convalescence, particularly after illness, operations or post-treatment of distemper.

The success of "Hewsol," the non-poisonous, non-corrosive germicide with a co-efficient five times that of carbolic acid, has caused it largely to replace lysol both for disinfecting the hands before and after operations and as an application to wounds. "Hewsol" dusting powder has also proved successful in the treatment of wounds and sores, while a new "Hewsol" compound liquid preparation, with resorcin, is being extensively used for canker in the ear.

Under the title "P.A.B.S." Hewlett's introduced sulphanilamide and both the powder and the 7½ grain tablets have been widely tested by the profession with good results. In streptococcic infection it is apparently a specific while in the treatment of metritis in bitches and some forms of distemper it has been found useful.

"Salutan" is the latest treatment for burns and abrasions. It is a mixture of pulv. salutaria (Hewlett's) and tannic acid and is dusted on the affected part, covered with cotton wool and repeated as required. A medical man has stated that it is far superior to tannic acid spray or tannic acid jellies.

The improved Neo-Injector for milk fever and calcium deficiency is a model of simplicity for the administration of calcium boro-gluconate injection. It fits any ordinary bottle from 8 to 20-oz. capacity, no special cork or rubber cap is necessary, it is easily cleaned or sterilised, while any quantity may be injected by a simple adjustment. It is supplied in a washable case, and the price is moderate. It is claimed to be easily the best apparatus tha has been introduced for the purpose.

A selection of "Ampuliques" and Hewlett's injections in rubber capped bottles, prepared in the aseptic laboratory of the firm under expert qualified supervision, included manganese butyrate for mastitis in cows and interdigital cysts in dogs; magnesium lactate which has recently been recommended for canine hysteria; wheat germ oil for vitamin E deficiency and sterility in cattle and "Ampuliques" colchicine for the

treatment of canine tumours. Among new remedies attention may be called to carbamylcholine injection (Hewlett's) for impaction of the colon and bowel atony. This acts by parasympathetic stimulation, causing a rapid peristalsis, and is claimed to have a more persistent action than acetylcholine of which good reports have appeared. "Ampuliques" and injections in rubber-capped bottles of both these drugs are available.

A good display of surgical instruments, many of which have been made at the suggestion of veterinary surgeons, was on view. A "portable" lethal chamber for cats and small animals, for which a patent is pending, was novel, as it can also be used for the administration of anaesthetics. The apparatus folds up into a reduced size and being light and compact is easily carried by means of the handle and straps provided.

A cat-bag, suggested by an eminent veterinarian, has been made by Hewlett's and consists of a strong canvas bag with a draw-string at one end and a metal trap at the other, through which the cat is pushed, and this can be fastened while the draw-string is tightened around the neck. Animals rest remarkably quietly while controlled and for anaesthetisation, administration of medicines and many operations, particularly on the mouth, it has been found invaluable. Among its advantages are that it is light, easy to carry and very simple to take apart for boiling or washing.

The packed preparations, such as dusting powders, drenches, wound liniment, etc., prepared by Hewlett's have always been popular with the profession as they are convenient and easily handled. They are too numerous to mention and whether supplied with the veterinary surgeon's own name and address or quite plain, the style is equally satisfactory.

As agents for the Bacteriological Institute, Tours, the director of which is Dr. Belin, Messrs. Hewlett exhibited many vaccines and sera, the most popular being distemper vaccine, both curative and prophylactic. Bacterins, aggressins and oestral hormone of the Jen-Sal Laboratory were also shown.

We can congratulate Messrs. C. J. Hewlett & Son, Ltd., on a display of absorbing interest to the veterinary profession which was amply demonstrated by the daily attendance while the Exhibition was open.

Parke Davis & Co., Beak Street, Regent Street, London, W.1, exhibited among their newer preparations, antuitrin "S" (Antroidin), the anterior-pituitary-like sex hormone obtained from pregnancy urine, which has been used with success in veterinary practice for the prevention of abortion, and in sterility; Theelin, the ovarian follicular hormone; Mapharside, a trivalent arsenical compound which is comparatively stable and does not become more toxic in the body or while standing in solution (Mapharside has given good results in the treatment of blackhead in turkeys); tetanus gas-gangrene antitoxin (combined) for prophylaxis in contused or penetrating wounds contaminated with soil or road dust, as well as tetanus antitoxin and gas-gangrene antitoxin separately for prophylaxis and treatment; tar dermament, an antiseptic and protective application for the treatment of various skin diseases.

Vitamin preparations included Nadola, a preparation of halibut-liver oil with added natural vitamin D, available as a liquid and in capsules; Abidon capsules (vitamins A, B and D), also available with added vitamin C; Crysto-Vibex, crystalline vitamin B_1 in ampoules and tablets, the latter being also issued in combination with vitamin C.

Gland products included thyroid gland tablets; paroidin, a standardised extract of parathyroid gland; pituitrin, the extract of the posterior lobe of the pituitary gland, and its two active fractions pitocin and pitressin; adrenalin, etc.

Well-known Parke-Davis & Co. veterinary preparations were also exhibited, such as blackleg agressin, blackleg filtrate and blacklegoids; C.A. worm capsules, for tapeworms and round worms in chickens and other fowls, and Nema worm capsules, which are effective against round worms, hookworms and other stomach worms, but not tapeworms; mastitis mixed bacterin (bovine): mixed antigen (canine) and mixed bacterin (canine) for the prophylaxis and treatment of distemper associated with *B. bronchisepticus*; pneumonia phylacogen (equine): mixed phylacogen (equine) (indicated in the treatment of strangles, abscesses, quittors, fistula of the withers, poll-evil and other suppurative conditions); staphylococcus-streptococcus bacterin, canine and equine; tuberculin for veterinary diagnosis, etc.

Pharmaceutical Specialities (May & Baker) Ltd., Dagenham, were welcome newcomers for this was the first occasion in the history of the firm on which these manufacturers of ethical products which have gained a high reputation among the medical fraternity, took part in a purely veterinary exhibition. Many members of the veterinary profession are already using this firm's preparations regularly in their practice with satisfactory results, and the stand at Glasgow gave others, previously unacquainted with these specialities, an opportunity of examining them and of obtaining informative literature.

The exhibit included an interesting range of chemotherapeutic agents for the specific treat-

ment of animal infections. A particular feature was made of the sulphonamide preparations, Proseptasine, for oral administration, and Soluseptasine, a colourless sulphonamide in concentrated aqueous solution for parenteral administration. For veterinary purposes a special 20 per cent. solution of Soluseptasine is prepared which enables an adequate dose to be administered in a comparatively small volume.

Soluseptasine is a complex sulphonamide which is readily soluble in water, and was the first colourless sulphonamide to be offered to the veterinary profession. It is supplied in ampoules and bottles of solution for subcutaneous, intramuscular, or intravenous injection, and experimentally has been found to be tolerated by animals in doses which are 75 to 150 per cent. higher than the tolerated doses of other soluble products of this type. The antistreptococcal activity of Soluseptasine has been found to be entirely comparable with that of the soluble dye products hitherto available and clinical trial has confirmed both the activity and low toxicity of this product. In addition to its value in streptococcal infections Soluseptasine is indicated for use in conditions associated with infection by staphylococcal and coliform organisms and is suggested for trial in a number of other infections.

Among the general indications in all animals are: endometritis, puerperal septicaemia, peritonitis, cellulitis, septic pneumonia, acute abscesses, cystitis and tonsillitis, and for the prevention of puerperal septicaemia and of septic infection following operations, wounds, bites and stings. It has given striking results in the treatment of septic pneumonias of horses, metritis during the puerperal period in dogs and other animals, joint-ill in foals, lambs, and calves, and in strangles of both the common and atypical types. Other conditions in which it has been successfully employed are lymphangitis, and respiratory complications of distemper. In chronic bovine mastitis the results are disappointing but in the acute form Soluseptasine brings about rapid clinical improvement, the temperature being reduced and the local symptoms subsiding. If the local lesions are advanced when treatment is begun the quarters naturally do not milk again but when the quarters are less severely affected they milk again with, however, a diminished yield.

Acetylarsan is a pentavalent organic arsenical supplied in colourless solution which has the advantage that it may be administered by intramuscular or subcutaneous injection without fear of local reaction. It is used in equine pernicious anaemia, myelitis, strongylosis, and as a general tonic. Acetylarsan has an almost specific action in the treatment of contagious agalactia.

In dogs Acetylarsan may be employed as an alternative to the oral administration of Stovarsol in the nervous complications of distemper. It has a valuable tonic effect in improving general nutrition, and is employed in anaemia, and following acute infections and exhausting diseases. It is also used in warts, eczema, and other dermatoses.

Stovarsol is a pentavalent arsenical for oral administration and is valuable for use in any conditions in which arsenic is indicated on account of its comparatively low toxicity. Stovarsol is employed as an adjunct to anthelmintic treatment in cases of helminth infestations, especially in dogs. In addition to its antiparasitic properties Stovarsol exerts a general tonic effect together with a favourable influence on the anaemia which so frequently results from helminthiasis. Stovarsol has a specific action in canine piroplasmosis and is of value in various skin affections, especially warts. It is also used in affections of the nervous system following distemper and for its effect in improving nutrition in debilitated states, resulting from acute infections.

In fowls, Stovarsol is used for the treatment of coccidiosis and in turkeys it may be employed by oral administration as an alternative to injection treatment with Vetarsenobillon—V.A.B. in the prevention and treatment of infective entero-hepatitis.

Gonacrine is an acridine derivative which is issued in solution specially prepared for intravenous injection. It is employed in the treatment of various forms of piroplasmosis including British bovine red-water. An intravenous preparation has the advantage in the acute forms of the disease of having a more rapid effect than that obtained from the intramuscular or subcutaneous routes. In *Babesia divergens* infection one or two injections are usually sufficient to effect a cure. Among infections for which there is experimental and a certain amount of clinical evidence as to the value of this preparation, contagious abortion and infections by organisms of the *Cl. welchii* group may be mentioned.

Proseptasine was the first colourless sulphonamide for oral administration to be offered to the veterinary profession. Experimentally it has been found to be as active and much less toxic than the simpler compound p-aminobenzenesulphonamide (sulphanilamide) and in addition has the advantage of being tasteless. Proseptasine has similar indications to Soluseptasine but is most commonly used for cats and dogs. Among the conditions for which clinical investigation has shown it to be of value are the respiratory complications of distemper, and interdigital abscesses.

Vetarsenobillon. — V.A.B. Much of the pioneer work in the treatment of blackhead in turkeys was carried out with Tryparsamide, an organic arsenical compound of the pentavalent type, which had previously been used extensively in the treatment of trypanosomiasis, both in man and animals. Tryparsamide was found to be effective both for the treatment and prophylaxis of infective entero-hepatitis but a demand arose for a preparation in solution ready for use, as solutions of Tryparsamide have to be freshly prepared. This led to the introduction of Vetarsenobillon which is supplied in rubber-capped phials of solution.

Novarsenobillon—N.A.B., known throughout the world as N.A.B., has for over 20 years been the standard British arsenical treatment of syphilis. It is now known that this compound has a number of valuable applications in veterinary practice and it is used in actinomycosis, demodectic mange of cattle and dogs, pleuro-pneumonia of equines and bovines, and equine influenza.

Neptal is an organic compound of mercury issued in solution for intramuscular or intravenous injection. It is a powerful diuretic producing marked increase in urinary output which is maintained over a considerable period. Neptal is indicated in the treatment of oedemas, anasarca, ascites, pleural effusions, hydrothorax, etc.

Gardenal is British-made phenobarbital of the highest standard of purity issued in tablets for oral administration and in ampoules of solution of the sodium salt for parenteral administration. Gardenal possessès powerful sedative and antispasmodic properties which render it valuable in the treatment of chorea, epilepsy, eclampsia, and tetany, and as a sedative in nervous states, and as a narcotic prior to anaesthesia and euthanasia.

Planocaine is British-made procaine of the highest standard of purity issued in solution for epidural, regional, and local anaesthesia.

In addition to the above products such well-known preparations as chloroform anaesthetic "Baker's" which is guaranteed to meet the requirements of the most stringent authorities, preparations of acriflavine and adrenaline hydrochloride solution (May & Baker) were also exhibited.

Sandoz Products, 134, Wigmore Street, London, W.1.—In connection with the exhibit of this firm, attention was drawn most particularly to *Calcium-Sandoz* which, in view of its position as the calcium salt with which the original researches on milk-fever were carried out, has proved a valued friend of the veterinary profession. The injectable solution of Calcium-Sandoz, which is stabilised by a special process, is acknowledged to be the safest in use. Ampoules of various sizes are issued in strengths corresponding to 10 per cent. and 20 per cent. calcium gluconate although, owing to the method of stabilisation employed, the calcium is actually present as the gluconogalacto-gluconate. Calcium-Sandoz is also supplied in forms for oral use. While milk-fever is always the first condition to be associated with Calcium-Sandoz therapy, this should not be allowed to obscure the value of the salt in general calcium deficiency diseases and inflammatory conditions.

For canine hysteria *Calcibronat* is considered to possess advantages over Calcium-Sandoz. Calcibronat presents calcium and bromine in the form of a double salt, Ca-Br-Lactobionate. Thus the sedative bromine effect on the central nervous system, and its influence on the sensory motor functions of the brain, is reinforced by the calmative action of calcium on the autonomic nervous system. Dermatoses of the itching and weeping type also respond satisfactorily to this medication.

Among other products exhibited, was *Panthesine Balm*, an analgesic ointment, for use in cases of cutaneous irritation, containing 5 per cent. of the N-diethyl leucinol ester of p-aminobenzoic acid; *Piroblue*, a powerful parasiticide of the trypan blue series combined with cholic acid, indicated in bovine piroplasmosis and equine nuttaliosis; *Allisatin*, an intestinal antiseptic for small animals; *Fermergin*, an oxytocic utilised *post-partum* when it is advantageous to reinforce the tonus of the uterine muscle; and *Belladenal*, which is considered to be of value for epilepsy in young pigs and nervous troubles of small animals generally.

T. J. Smith & Nephew, Ltd., Neptune Street, Hull, had a display of bandages and surgical dressings, including "Elastoplast" elastic adhesive bandages, which are acclaimed by the highest authorities in the medical world as the ideal dressing for surgical and orthopaedic purposes, and which have proved just as valuable in veterinary practice.

"Elastoplast" wound dressings, consisting of a pad of gauze, medicated with bismuth subgallate 2/3 per cent. on an "Elastoplast" base, provides speedy, efficient and neat dressings for all minor injuries. The "Elastoplast" doctor's set, which was on display, contains a useful range of wound dressings and dressing strips. "Elastocrepe" super-elastic cloth bandages provide ideal support for tendon injuries in horses, and can be specially supplied with tapes for veterinary purposes. "Elastolex" super-elastic cloth bandages have the advantage of a number of Lastex threads in the cloth, which ensures that the elasticity of the bandage is retained over a long period.

Washing renews the elasticity both of "Elastocrepe" and "Elastolex" bandages.

"Cellona" plaster of Paris bandages contain 90 per cent. plaster of Paris by weight, moisten in five to seven seconds, and set in from five to ten minutes, or longer if necessary. "Cellona" plaster of Paris bandages are used exclusively in the production of the film, "The Treatment of Bone Fractures in the Dog and Cat," projections of which to professional audiences can be arranged. Branch Secretaries should write to T. J. Smith & Nephew, Ltd., Medical Dept., Neptune Street, Hull.

Victor X-Ray Corporation, Limited, 15-19, Cavendish Place, London, W.1 (and at Belfast, Birmingham, Bristol, Cardiff, Dublin, Edinburgh, Glasgow, Liverpool, Leeds, Manchester, Newcastle, Nottingham), had as their principal exhibit the Victor Model F-3 shockproof veterinary X-ray unit. This is a portable diagnostic apparatus designed to give both radiographic and fluoroscopic (screening) service. Previous experience in radiography or electricity is not required to operate or assemble the unit. It operates from any convenient electric outlet, and no special wiring of any kind is necessary. For portability it packs into a convenient carrying case, the whole weighing only 46 lbs. The shockproof construction is achieved by the Victor principle of complete oil-immersion of X-ray tube and entire high-voltage system, it being physically impossible for operator or patient to come into contact with the high-tension parts. All risk of electrical shock is thus eliminated, and at the same time tube life is considerably prolonged by virtue of the rapid cooling effect of the circulating oil bath. An additional advantage of the oil-immersion principle is that the equipment is rendered independent of humidity or other adverse atmospheric conditions. Operation of the F-3 unit is extremely simple and flexible. Kilovoltage may be varied in three steps to suit any desired technique, and filament current (milliamperage) may be regulated throughout the range of the unit. For radiography a hand timer provides exposure intervals from one-eighth to ten seconds — for screening a foot-switch is provided.

Also exhibited was the Victor Model F combination portable-mobile diagnostic veterinary X-ray unit. This consists of the F-3 unit described above, mounted on a special lightweight mobile tube stand—giving to what is purely a portable outfit all the conveniences and advantages hitherto limited to permanent installations. The mobile tube stand is itself readily dis-assembled for portability.

Another equipment exhibit was the Victor Model F Quartz-Mercury ultra-violet lamp for actinic radiation therapy. It incorporates a newly designed "Uviarc" self-starting quartz burner designed to ensure a longer, useful life and more economical operation.

The remainder of the Victor exhibit comprised a representative range of radiographic and fluoroscopic accessory equipment and supplies.

Watson & Sons (Electro-Medical), Ltd., 43-47, Parker Street, Kingsway, London, W.C.2. —The use of radiography in the diagnosis and prognosis of injuries and diseases of animals has increased considerably in the past two or three years. It is safe to assume, moreover, that in the future developments in this direction will be accelerated. The increased of X-rays is due largely to the improved safety and efficiency of the necessary apparatus, with, of course, a growing appreciation of the value of the method.

The "Sunic Junior" X-ray Outfit, which formed the principal exhibit on the Watson stand, is admirably suited to the radiography of small animals. Its use does not call for any specialised technical knowledge, and there is no noise to frighten nervous animals.

The exhibit included a very interesting display of radiographs, including not only dogs, but also some reptiles, a hedgehog and larger animals including horses.

Also included in the exhibit were some examples of Watson artificial sunlight and infrared apparatus, both of which appliances have proved very useful in the treatment of numerous common ailments, and for shortening the period of convalescence.

Willington Medicals Ltd., Alpha Laboratories, Limes Place, Croydon.—This firm's stand was a source of special interest mainly because of two products, Elixir Chelidon Co. (The Kidney Specific) and Antisepticine (Soluble Saline Antiseptic).

Besides catering for all the requirements of the veterinary profession, this firm makes a speciality of packing goods to clients' own requirements and turning them out in a highly professional manner.

They have also perfected a new Local Anaesthetic, "Willcain," which is a Procain and Adrenalin preparation combined with a powerful healing agent which not only has a definite therapeutic action on wounds but also has the property of keeping the solution absolutely sterile even if accidentally contaminated.

This firm inform us that they deal only with the profession, and are also agents for "Seropharm" vaccines and serums whose products are increasing in demand very quickly, more especially the *Canine* and *Feline Distemper* serums.

Altogether a very interesting stand of products of proved merit packed to a very high professional standard.

Willows, Francis, Butler & Thompson, Ltd., 73, 75 and 89a, Shacklewell Lane, London, E.8.—Our old friends, Willows, Francis, Butler & Thompson were, as ever, in tasteful evidence with their exhibit, and judging from their numerous visitors, the firm's popularity appears to increase as years go on.

As usual they are progressive, and something new is always on their stand, as well as their old and tried standard preparations. We noticed Injection Cholin Acet., the latest form of treatment for equine colic on rational lines. For the effective dealing with scour in calves they have "Bismolin," a preparation of salicylate of bismuth containing a proportion of brilliant green which has had a most gratifying reception and is already in great demand. A group of concentrated mixtures appeared to us to be well worth considering, especially by the busy canine practitioner: several of these formulae are especially useful in hysteria and gastric troubles in dogs. We missed from the stand the time-honoured "Super Block" of Barbados aloes, but found it replaced by "Peristain," a convenient laxative in powder form for horses instead of physic balls. It is supplied in bulk and also in convenient packets containing ½ oz., ¼ oz., and 180 grains as average doses, according to the size and age of the animal.

Willows also have "Piromuth" for dealing with piroplasmosis by hypodermic injection.

"Sanotol," Willows', is a new antiseptic which is non-toxic and non-irritating with a Rideal Walker coefficiency of 2·8 and would appear to be a thoroughly reliable preparation for the surgeon's needs.

The firm also showed an interesting variety of instruments and especially Dr. Provost's embryotome for which Willows are the sole distributors in Great Britain. The doctor had come specially over from France to give a demonstration of the instrument, which took place in the Glasgow Veterinary College, before a large and appreciative company of practitioners. Further particulars of this will be found in another column.

Messrs. Willows are again to be congratulated on an excellent display.

The death of Sir John Melrose, the well-known Australian pastoralist, at the age of 78, was recently announced at Adelaide. Sir John Melrose gave over £20,000 to charitable institutions and hospitals and to research in animal diseases and agriculture.—*Reuter.*

Mrs. Watt and Captain Watt, Chairman of the Provisional Committee

REGISTER OF ATTESTED HERDS

The Register of Attested Herds in Great Britain, recently published, gives particulars of 2,680 herds on the Register on June 30th last. Of these, 1,888 were in England and Wales and 792 in Scotland, as against 812 and 640 respectively on December 31st, 1937, when the Register was last issued. The herds in England and Wales comprised 79,000 cattle and those in Scotland 61,000 cattle, a total of 140,000 cattle. In addition, a considerable number of owners, with financial assistance from the Government towards the cost of tuberculin testing, were preparing their herds for attestation. Many of these herds have since become attested.

The Register gives the names and addresses of the owners of attested herds, with particulars of the breeds of cattle constituting the herds and a list of the markets in Great Britain which are authorised specially for sales of attested stock. Copies of the Register may be obtained on application to the Ministry of Agriculture and Fisheries, 7, Whitehall Place, London S.W.1, or to the Ministry of Agriculture and Fisheries (Animal Health Division, Scottish Branch), 15, Moray Place, Edinburgh, 3.

Major Brennan DeVine

President, N.V.M.A. 1938-39

To the majority of our readers the President for the ensuing year needs no introduction and our Association is to be congratulated on the choice of a man who is fully able to carry on a great tradition and to uphold the dignity of a great office.

Born in 1881 at St. Johns, Newfoundland, Major Brennan DeVine commenced his veterinary studies at Edinburgh in 1899, and continuing at the Dublin college qualified in 1903. Five years later he attained the Fellowship of the Royal College of Veterinary Surgeons, and was granted the Diploma of Veterinary State Medicine in 1910.

After qualifying he spent two years in busy practice at Bedlington, in Northumberland, with the late Daniel McGregor, and in 1906, when appointed Assistant Veterinary Officer to the City of Birmingham, commenced a long association with that City which exists to-day. This association was broken for a short period by the outbreak of war and joining the R.A.V.C. in August, 1914, our President proceeded to France in September, 1914, and was attached to A.D.V.S. 1st Division during 1914 and 1915. During the course of his military career Major DeVine was mentioned in despatches on three occasions and received the decoration of the Military Cross in 1915, and the French Order of Chevalier du Mérite Agricole, in 1917.

On demobilisation he returned to Birmingham and resumed his position on the veterinary staff. Those of us in the Midlands who have had the privilege of knowing that great clinician and administrator, John Malcolm, know equally well his right-hand man, DeVine, and when on the death of his chief in 1920 DeVine was selected to occupy this post his many friends felt that the right man had been placed in the position which he was well qualified to take up.

It has been truly said that it is the busy man who finds time to do more, and our President, while exercising and solidifying his influence as a brilliant administrator of his particular department, has found time for much additional work in connection with the profession. This was well instanced when, at about this period, the re-organisation of the National Veterinary Medical Association was being considered. Arrangements had been made for the late John Malcolm to become permanent secretary, but unfortunately he died in September, 1920, and the work was taken over temporarily by Major DeVine and the late Mr. H. J. Dawes, who was for many years Honorary Secretary to the "National." Of his work for the Association little need be said, as most members are aware of the interest and energy he has devoted to it: a Member of Council for many years, he has served on several committees and as Chairman of the Appointments Committee, and as a member of the Consultative Committee, he worked hard during the epoch-marking changes which have been taking place in the profession.

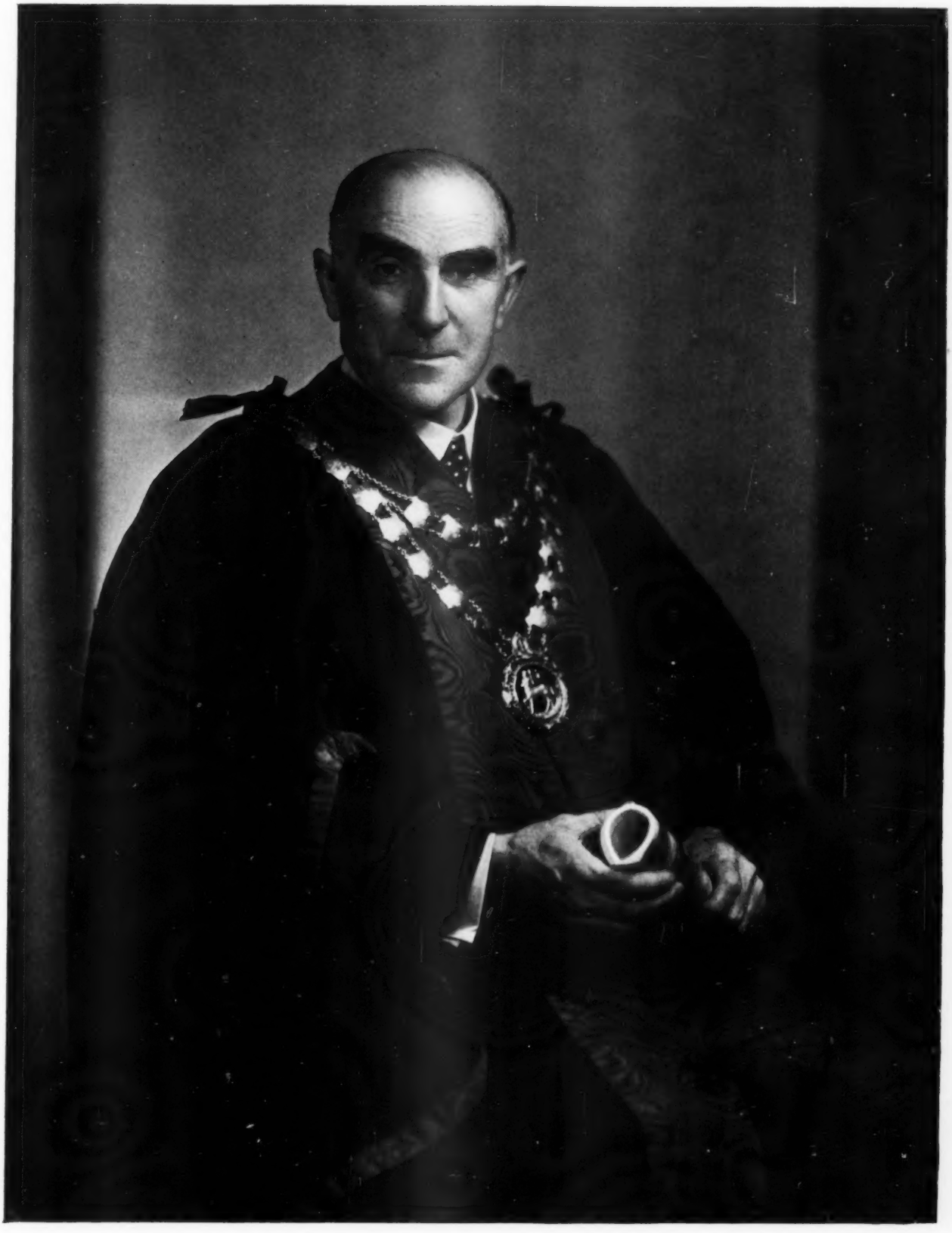
Appointed a Lecturer in Horse Shoeing at the Central Technical College, Birmingham, in 1906, he has served for many years as examiner to the Worshipful Company of Farriers, as a member of the executive of that Company, and is a Freeman of the City of Birmingham. He has also served a period as examiner to the Royal College of Veterinary Surgeons in the subject of Stable Management and Shoeing.

Keenly interested in the theory and practice of meat inspection, a subject to which he has devoted a great deal of time, he has visited on many occasions the principal abattoirs in Europe and in view of his extensive knowledge has served as an examiner in Meat Inspection to the Royal Sanitary Institute since 1920.

Joining the veterinary staff of the Royal Agricultural Society of England Show at Doncaster in 1912, he has acted as Chief Veterinary Officer of that Show since 1923, and is known in that capacity to exhibitors of stock throughout the country. A keen horseman and an excellent judge of a horse, Major DeVine some years ago was the moving spirit in the promotion of the Birmingham Annual Horse Parade, and acting as secretary since its inauguration, is held in high esteem by lovers of the horse throughout the Midlands.

And what of the man himself? A glutton for work, a dour fighter in any cause to which he is drawn and a keen speaker in debate, our President has a happy knack of maintaining lasting friendships with his colleagues in whatever branch of the profession they may be. Those of us who live and work near him know how readily any help or assistance which he can give is forthcoming, and it is this trait which above all others, accounts for the affection and esteem in which he is held by his confrères in the Midlands.

Although our profession is passing through a time when the guidance of men of clear vision is needed it may rest content that the N.V.M.A. has an efficient captain at the helm, and therefore to Major DeVine we extend our good wishes for a happy and successful year of office, knowing that he will fill the presidential chair with dignity to himself and to the advancement of our great association.



MAJOR W. J. BRENNAN DEVINE, M.C., F.R.C.V.S., D.V.S.M.

President, National Veterinary Medical Association of Great Britain and Ireland, 1938-39.

Closing Meeting

(Adjourned Annual General Meeting)

Major Brennan DeVine's Induction as President

The Adjourned General Meeting of the National Veterinary Medical Association of Great Britain and Ireland (the Closing Meeting of the Congress) was held in the Concert Hall of the Empire Exhibition on Friday, September 9th, 1938, at 12.30 p.m., the retiring President (Captain Donald Campbell) taking the Chair at the outset and presiding over a fairly large attendance.

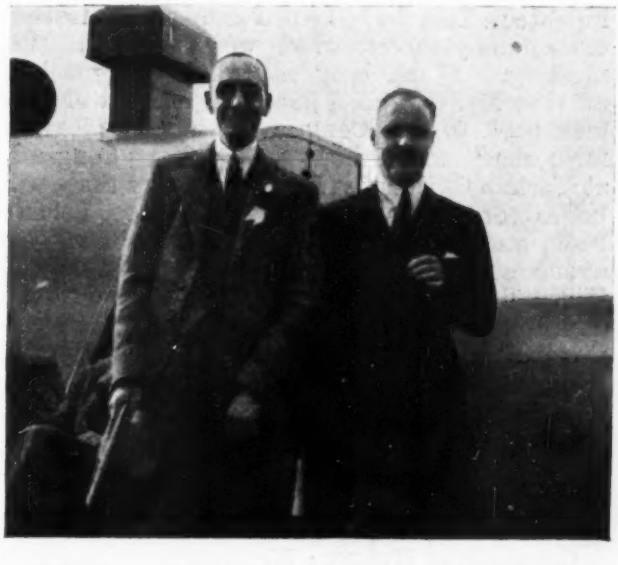
The Secretary read a letter from the Rt. Hon. The Earl of Home, K.T., to the Local Secretary, which was in the following terms: "Dear Mr. Thomson. Please express to the members of the Council my grateful thanks for the very interesting and pleasant dinner last night and their generous hospitality. It was extremely kind of them to ask me. It was a great pleasure to be there. I am writing to the President. Yours sincerely, Home." (Applause.)

PRESENTATION TO MR. ALEX. THOMSON

The President: You must all recognise that a Congress such as this does not come into being of its own accord, but that it involves a great deal of work on the part of one who is quite inadequately designated the Local Secretary. On this occasion, we have been very fortunate indeed in having as our Local Secretary my good friend, Mr. Alex Thomson. (Applause.) Living near Mr. Thomson, I have been able to see something of what it has involved for him. He has given ungrudging and devoted service to this Association during the year that he has been entrusted with the task of organising this Congress. Day and night he has thought and planned and worked for it, thinking out details, smoothing out difficulties, anticipating "snags" that might arise, interviewing people, and writing letters—all in order to ensure that this Congress would be one worthy of the Association. He has, I am sure, as his greatest reward the knowledge that this Congress has been, as I think I am entitled to say, a magnificent success. ("Hear, hear," and applause.) You would wish, however, to try to show him in a more satisfactory way than merely by my poor words the gratitude which you feel towards him and that gracious lady, his wife (applause), and so it has been decided to present to them the fitted wardrobe and the two chairs which you here see, as a tangible way of bringing to their recollection, if that should be needed—which I doubt—the success (the triumph, I might almost say) of this Congress. Mr. Thomson, on behalf of the Association, I ask you to accept these gifts. Long may you and your wife be spared to treasure the recollection of this Congress and of the gratitude we feel towards you. As a personal friend of your own, may I often be privileged to call upon you and hang up my coat in your wardrobe. (Applause.)

Mr. Alexander Thomson (Local Secretary) (greeted with loud applause): Mr. President, ladies and gentlemen, I do not want you to believe all the things the President has said about the running of this Congress. I will not deny that there has been a great deal of work to do in connection with it, but it has not all been done by me. I feel sure that in great measure the success of this Congress in numbers—and the success of any Congress is governed by the numbers who attend it—has been due in great part to the personality of our President, Donald Campbell. (Applause.)

I do not think you would have come to Glasgow if it had not been for Donald Campbell. Having come, of course, we were able to show you a little of the beauty around us. In addition to the personality of Donald Campbell I have had, I think I am safe in saying, probably the best Congress Committee that could be got together. We had a big Provisional Committee, which we boiled down into a small committee of eight or nine, which met very frequently, and that, I think, was in great measure the reason for the success of this Congress. I did a good deal of what I was told to do, having had all the details thrashed out by many able brains. I would not like to let this occasion pass—and I do not want you to think that I am making any invidious references



Mr. Alex Thomson, Hon. Local Secretary, Glasgow Congress, with Mr. F. Knight, Secretary, N.V.M.A.

—without singling out one or two members of my Committee for special mention. Our Chairman, Captain Watt, has been untiring in his efforts. He has been most enthusiastic, and he has infused his enthusiasm into every member of the Committee. You have yourselves seen him going about here doing jobs that probably I should have been doing. I would also like to mention the exhibit of radiographs. Above that exhibit is a notice, a short notice, saying that the exhibit was the work of the Committee. The Committee consisted of one, Mr. Weipers is almost entirely responsible for that whole exhibit, and I think you will agree, ladies and gentlemen, that he has made a good job of it. One other gentleman whom I should like specially to mention, who has been absent owing to illness—and you will be sorry to hear that he has been very ill—is Professor Boddie. His personality and criticism—to some extent constructive and destructive—have also gone some little way towards the success of the Congress, and he would, I am sure, have put forward a good demonstration on poisonous plants if he had been able to be with us.

Now, all the work which we have done at the Congress has not been serious. We have had many good nights, and I hope, Mr. President, that you and the members of the Committee will many times in future hang up their hats in my wardrobe. Getting to know these gentlemen on the Committee more closely has in itself made the job worth while. I have made firmer friends of Mr. Campbell and other members of the Committee than I could hope to have done had I not had the opportunity to serve in the capacity of Local Secretary. My wife and my partner in practice—Mr. Weir—have been most patient, and to them I am also indebted. They have helped in no small measure towards any success which we have had at this meeting. I can only say that I appreciate all that Mr. Campbell has said, and I will long look back to this Congress with very pleasant memories; and I hope at the next Congress, at Yarmouth, that the Local Secretary there will be as fortunate in his Committee as I have been, and, if so, I am perfectly sure it will be as successful as this Congress, with the exception that I do not think you can see in Yarmouth anything like the Clyde and the Firth that you saw yesterday. (Applause.) Ladies and gentlemen, on behalf of my wife and myself, I thank you very much for the most beautiful gift which you see here. (Applause.)

GREETINGS FROM AUSTRALIAN VETERINARY ASSOCIATION

Colonel Max Henry: Mr. President, members of the National Veterinary Medical Association, I have craved permission in the name of the Australian Veterinary Association to extend to you their most cordial good wishes for your future development and progress (applause), and I think I can forecast the vote of thanks which they will send to you when I report to them how very well you have entertained their delegate—and, personally, sir and members, on behalf of my daughter and myself I want to thank you for your very kind hospitality. May I say, sir, that in your affiliated Association in Australia, you have a body largely composed of young men who form a very virile and vigorous Association and one which has as its basic driving power that nothing which affects the health of animals or the healthfulness of animal products is outside the function of the veterinarian. (Applause.) We agree that the province of the veterinarian is curative and preventive, but we push the word "preventive" to its extreme limits and we do not see how far we can yet push it.

You will understand that coming back to England after so many years, I was filled with curiosity as to how my profession had developed in the homeland, and I will report to my Association that their mother society in Great Britain is as vigorous as their own Society and that they need have no fear in following the lead which is given by the National Veterinary Medical Association—that your Society is not only virile and vigorous, but knows how to run a Congress and how to enjoy itself very thoroughly. On perhaps a local matter, sir, I might say that in Sydney one very often sees the kilt swinging, and that every dance finishes up with "Auld Lang Syne"—and you should hear them sing it. Thank you, sir. (Loud applause.)

The President: Well, Colonel Henry, we have heard with very great pleasure the message of greeting and goodwill which you have conveyed to us from the Australian Veterinary Association. We have been very glad indeed to receive yourself and Miss Henry on the occasion of this Congress. Will you please, on our behalf, convey to your Association our thanks and appreciation and reciprocate to them our best wishes for their future prosperity. May they go on increasing in strength and in influence. We thank you, sir, for coming here to-day. (Applause.)

Induction of New President

Now, ladies and gentlemen, I have the pleasure of introducing to you your new President, Major DeVine. (Loud applause.)

Major DeVine, I congratulate you on receiving the highest honour which this Association can accord to one of its members. That you will bear it worthily I am quite certain. You will find, as I have found, that the members of the Association are of a loyalty and generosity beyond all praise. I should also like to assure

you that you have my own very highest regard, and I trust, as I believe, that you will have a very happy and successful year of office. (Loud applause.)

[*The Chair was vacated by the retiring President, who installed Major W. J. Brennan DeVine, M.C., F.R.C.V.S., D.V.S.M. (Vict.), Chief Veterinary Officer, Birmingham Corporation, into office by investing him with the robe, chain and badge of President of the Association.*]

The President: Mr. Campbell, ladies and gentlemen, I am very highly appreciative of your applause on my appointment as President of the National Veterinary Medical Association. I am surprised, personally, but none the less proud, that the members of the Association have such confidence in me as to appoint me to this position. I only hope that I shall not fail you, and that I will be able, when the time comes to hand over my chain of office, to leave the Association none the worse of my presence as President. I thank you very much indeed. (Applause.)

Thanks to Retiring President

My next duty, ladies and gentlemen, is to move a resolution thanking your Past President for his work during the year. You are all personally acquainted with Mr. Donald Campbell and all the members are well acquainted with the wonderful work which he has carried on during the past twelve months. With regard to the work he has had to do, to him has fallen the heaviest year that the National Veterinary Medical Association has ever experienced. As you know, during the past year there has been a great upheaval in the veterinary profession, and reorganisation of our work—and the National Association has been called upon, mainly through its President, to carry on negotiations with the Government Department in the interests of the members of the Association.

Mr. Donald Campbell has filled the Chair with dignity. He has always used courtesy, and has given the greatest help to all the members. I have had a lot of experience on committees with him, sat under him, and he has carried on without waste of time the work of the Association. With his tact and natural courtesy and dignity he has raised the opinion of outsiders of the veterinary profession in this country. (Applause.) He went to the Government Department when there was a spirit almost of uncertainty. He negotiated with the Government Department. He met several people representing the Government, and he always came away leaving behind him the feeling that he was out to help not only the Government but the veterinary profession, and to improve the progress of veterinary science in this country. I think the National Veterinary Medical Association—indeed, the whole of the veterinary profession in this country—have a good deal to be thankful for in their good fortune in having Donald Campbell as their President during the past year. (Applause.) I do not think, as we are so close to the year 1938, that we are in a true position to get a perspective of the work that has been carried out, but in five, ten, maybe twenty, years' time, when it can be seen at a better distance, I think the wonderful work which Mr. Campbell has done on our behalf will be more appreciated. (Applause.) I have very great pleasure in proposing a vote of thanks to him for occupying the Chair during the past year, and I will call upon Professor Mitchell to second my resolution. (Applause.)

Professor W. M. Mitchell (Edinburgh): You, sir, have spoken very fully upon how Mr Campbell has carried forward the work of this Association during the past year. I would just like to stress the field work which Mr. Campbell carried on in Scotland before he went to London and then moved on to take the post of President. In the early days of the work in the Scottish Branch, in Scotland here, I came into contact with Mr. Campbell first of all on the Executive of the Association, and it was then I formed the highest opinion of Mr. Campbell's qualities, and I felt sure that, given the opportunity, he would make his mark in the profession—and I think that this year has certainly fulfilled what I at that time, as an individual looking at the man, in the Executive Committee, thought. I will always regard this as a year to look back upon with great pleasure not only because of what has happened to the profession, which I hope is a great step forward, but because of the fact that Mr. Campbell has been a directing influence and I feel sure that there are many who could not have carried through the duties which Mr. Campbell has carried through so efficiently for the simple reason that he has got Scottish tact, and I would say this, as a man from the East of Scotland—much more tact than we in the East are noted for. (Laughter.) Now, that is a great thing for a person from the East of Scotland to say because, as you know, here in Scotland we bicker and apparently quarrel, as Englishmen see us, when we are in our own country, but one of the things which was so well marked when we went South was how Mr. Campbell and myself sat side by side and helped to defend ourselves very often, in Committee, against the Englishmen. (Laughter.) In spite of the fact that he is going from the Presidency—and one feels sorry—I feel he is going to come back to the other side of the table and we are going to have continuation of our association. I would like to be associated with our President in seconding this resolution, and I would ask you to accord

to Mr. Campbell our greatest thanks for his work during the past year. (Loud applause.)

Captain DONALD CAMPBELL (retiring President): I thank you very much indeed for the appreciation you have shown of the work which I have tried to do while President of the Association. It has been said by Major DeVine, and I think it is generally recognised, that during my year of office the duties attached to the Chair were of a particularly arduous nature. I will not deny that. In performing them I can only say that I have done my best. Time will tell whether or not that best has been good. I trust it will prove to have been so. One small claim I feel that perhaps I might make. During the past year I have always had in the front of my mind the idea of promoting, as far as I have been able to do, the unity of the profession, working so that all sections of it would have rather more appreciation and understanding of each other than before. I do feel, ladies and gentlemen, that in that I have been able to help a little. Mrs. Campbell and myself have been somewhat overwhelmed this week by your great kindness to us. You came to hold this Congress in our country and near our home. There is an old Scottish saying when friends are departing, and I say it now to you: "Haste ye back." (Loud applause.)

VOTES OF THANKS

The PRESIDENT: I will now call upon Mr. Mr. Lamont to propose the next resolution.

Mr. H. G. LAMONT (Belfast): As a citizen of another great shipbuilding city, Belfast, it affords me the greatest possible pleasure to move that the best thanks of our Association be accorded to the Corporation of the City of Glasgow for extending to our Congress a Civic Welcome and also for the splendid entertainment and Reception which they gave us. I have very great pleasure in moving that. (Loud applause.)

Captain J. R. BARKER: I have very great pleasure in moving a hearty vote of thanks to Readers of Papers, Openers of Discussions, Operators and Demonstrators, for their contributions to the success of the Congress; to the Provisional Committee for the labours entailed in the arrangements for the Congress, and to the Scottish Divisions—West of Scotland, Scottish Metropolitan, North of Scotland, Ayrshire, and Dumfries and Galloway—for the hospitality extended in welcome to the Congress on Sunday evening. I beg formally to move that resolution. (Loud applause.)

Mr. W. J. MCINTOSH: I have had allotted to me the very pleasant duty of asking you to accord to the Glasgow Veterinary College our best thanks for the facilities provided and the accommodation for the demonstrations. Our best thanks are due to the Governors of the College and particularly to our esteemed friend and colleague, Dr. Whitehouse. I ask then that a very hearty vote of thanks be given to the Glasgow Veterinary College for the facilities and for the hospitality extended to us. (Loud applause.)

The PRESIDENT: The next resolution is a resolution of thanks to the Cathkin Braes and Hagg's Castle Golf Clubs for allowing the two competitions to be played on these courses. I would ask Dr. Gordon to move that resolution.

Dr. W. S. GORDON: Mr. President, ladies and gentlemen, during this week we have had the facilities of playing golf on the Cathkin Braes Golf Course and also on the Hagg's Castle Golf Course. We appreciate the courtesy of these clubs in allowing us to play over these courses and beg to thank them very much indeed for these facilities. (Applause.)

Dr. W. R. WOOLDRIDGE: Not the least important factor at a Congress such as this is the publicity given to it in the Press. When that publicity is of an intelligent character this resolution becomes more important, and I therefore, in this particular instance, have great pleasure in proposing to you that this General Meeting expresses its thanks to the Press for the publicity given to the proceedings of the Congress. (Applause.)

Thanks to Retiring Officers

The PRESIDENT: As you know, ladies and gentlemen, the Annual Meeting—this is really only the second part of it, was held two days ago. Last year we had Mr. Rider as Honorary Secretary and Mr. Wragg as Honorary Treasurer. Unfortunately, these gentlemen have retired, and as this is now an open meeting, I would like to call upon Captain Campbell to propose a resolution of thanks in respect of these two gentlemen.

Captain DONALD CAMPBELL: I wish formally to propose that the thanks of the Association be now accorded to Captain Rider—our retiring Hon. Secretary, and Captain Wragg—retiring Hon. Treasurer, for the many services which they have rendered during the years in which they held office in the Association. It has been unfortunate that in the one year both have felt it necessary to retire. I do think, sir, it would be a pity if this meeting concluded without having it put formally on record and conveyed to them that the Association are deeply appreciative of the great services which they have rendered. (Applause.) I move, sir, that the thanks of the Association be accorded to Captain Rider and Captain Wragg. (Loud applause.)

The PRESIDENT: I would ask Dr. Wooldridge to second that resolution.

Dr. W. R. WOOLDRIDGE: There is nothing which I would care to do more than to second this resolution of thanks to two servants of the Association who have done, over a period of

years and under great difficulty, very excellent work for the Association. It is our loss, ladies and gentlemen, that these gentlemen have been forced to retire from these positions. In addition to seconding this resolution I should like to take this opportunity to thank you for having shown the confidence you have shown in electing me to the important position of Honorary Secretary. I have a difficult task to carry out in the future. The work of this Association grows by leaps and bounds. It represents the profession I might say practically throughout the English-speaking world. It tries, as our late President has told you, to put aside internal sectarian differences and always to make decisions that are in the best interests of the profession as a whole. I, as your Honorary Secretary, in future shall leave no stone unturned to try and carry on that great tradition which is being carried down from such eminent leaders as Donald Campbell, Mr. Wragg and Mr. Rider. Ladies and gentlemen, let me second with all my heart this resolution of thanks to our retiring Honorary Treasurer and Honorary Secretary. (Applause.)

The PRESIDENT: I would ask Mr. Bywater to speak on this resolution.

Mr. H. E. BYWATER: Until a few moments ago, I thought you were to be spared the punishment of listening to my voice. Our retiring President very wisely spared you that ordeal last Wednesday, and I thought you would have escaped it to-day. However, I rise with very great pleasure to support what Dr. Wooldridge has so ably said with regard to our retiring officers. I can add nothing to that. I am sure we are all agreed that we have been very well served in the past, and Captain Wragg and Captain Rider deserve the best thanks of the Association. Whilst I am on my feet I must also thank you for the very great honour you have done me and the confidence you have shown in me by electing me to fill Captain Wragg's place. It was with a great deal of misgiving that I accepted the post of Honorary Treasurer. Captain Wragg has filled the post with such ability in the past that it will be impossible for me to emulate his example. Treasurers can never expect to command or deserve unqualified success, or to merit unqualified satisfaction. Why the Association should have chosen me when there are many other men much more able to fill the post I really cannot understand, and I have no delusions about the matter at all. The only thing that encourages me in my task is the fact that I know I shall have, whenever I need it, the advice of Captain Wragg; and, of course, after all, the real work will be done by the efficient staff at Headquarters. With that encouragement in view I will simply promise to do my best. I know I cannot possibly command unqualified satisfaction; whether I can even deserve satisfaction is somewhat doubtful, but I will do my best and I hope I will avoid creating too much dissatisfaction. Thank you. ladies and gentlemen. (Applause.)

Declaration of Close of Congress

The PRESIDENT: My next duty, ladies and gentlemen, is to declare the close of the Congress. Although I do that, I do not want the members of the Council to rush away, because we want them here for another meeting, for some serious business, so I hope they will all stay. Otherwise that ends the proceedings as regards the open meeting for to-day, and I now declare the Congress closed.

MR. H. E. BYWATER AND DR. W. R. WOOLDRIDGE
(Newly-appointed Hon. Treasurer and Hon. Secretary, N.V.M.A.)

Professor Stapledon and Mr. William Davies are, the *Farmers' Weekly* understands, shortly setting out as emissaries for Mr. Morrison on an extended tour of the grasslands of England, the idea being partly to make a survey of the country's grass and its potentialities, and partly as propaganda for more vigorous management of grass.

Papers Presented to Congress

In this issue we publish (below) the first of the papers presented at the 1938 Congress of the N.V.M.A., contributed by Professor Edward Hindle, of Glasgow University, on "Filterable Viruses, with special reference to Immunity," together with a report of the ensuing discussion and the essayist's reply.

Future numbers of the *Record* will contain, in the order in which they were presented, the following papers, with reports of discussions: "The Problems of the Practitioner in connection with the Differential Diagnosis and Treatment of Diseases of Young Pigs," by Mr. H. G. Lamont, M.Sc., M.R.C.V.S., of Stormont, Belfast; "The Control of Mastitis in New York State," by Dr. D. H. Udall, S. D. Johnson and Jean Ferguson, of Cornell University, Ithaca, New York; "Heel Bug in the Thoroughbred Horse," by Dr. A. C. Fraser, Lambourne, Berks.; "Poultry Husbandry and its Influence on the Incidence and Spread of Disease," Mr. J. E. Wilson, B.Sc., M.R.C.V.S., Edinburgh, and "Clinical Observations of the Beta Haemolytic Streptococcal Infection of Dogs," by Dr. Tom Hare and Dr. Fry.

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No. 1—Filterable Viruses, with Special Reference to Immunity

EDWARD HINDLE, M.A., Sc.D., PH.D., F.R.S.E.,
Regius Professor of Zoology,
University of Glasgow

Among the many remarkable discoveries of recent times those relating to the part played by filterable viruses in the causation of disease must occupy a very prominent place in the history of veterinary science. It is hardly necessary to mention that foot-and-mouth disease was the first human or animal disease shown to be due to an infective agent beyond the limit of visibility, and this discovery was made only at the end of last century. Therefore our knowledge of filterable viruses has been acquired, almost entirely, within the last 40 years and indeed, most of it, within the last 20 years.

* Presented to the Annual Congress of the National Veterinary Medical Association of Great Britain and Ireland, Glasgow, on September 5th, 1938.

The methods of investigation used for studying the nature of filterable viruses differ somewhat from those with which most biologists are familiar. Since most viruses are beyond the limit of visibility the methods employed approximate those used by physicists, for just as one is dependent on the inoculation of experimental animals for demonstrating the existence of a filterable virus, so one has to employ various devices to prove the existence of electrons. One makes "coincidence" observations on both viruses and electrons, and creates an hypothesis or theory which will fit in with the experimental observations. The most convenient and generally accepted hypothesis regarding the general nature of viruses is that they are independent living micro-organisms. It is true that up to the present all pathogenic viruses are capable of multiplication only in the presence of living cells, and they have not yet been grown in artificial culture media like many bacteria and protozoa. However, it must be borne in mind that many other undoubtedly living organisms have also not yet been cultivated in artificial media; for example, the leprosy bacillus, and the great majority of the higher parasitic animals, cestodes, nematodes, etc.

The results of ultra-filtration analysis, ultramicroscopy and high speed centrifugalisation have shown that viruses are particulate and that each has a specific size. Moreover the sizes of viruses range from just below the limit of ordinary microscopic visibility down to only two or three times the diameter of serum proteins, etc., as shown by the following table:

Virus	*Diameter of particle in millimicrons*
Psittacosis	300
Vaccinia	175
Bovine pleuro-pneumonia ...	150
Herpes	130
Infectious ectromelia ...	130
Influenza	100
Newcastle Disease	100
Laryngotracheitis	82
Fowl Plague	72
Rift Valley Fever	34
Equine Encephalomyelitis	25
Yellow Fever	24
Louping-ill	17
Foot-and-Mouth Disease ...	10
Poliomyelitis	10
(Oxyhaemoglobin)	3-5

It should be emphasised that the use of graded collodion filters, such as "gradocol" membranes, is essential for determining the size of particles and even to determine whether or not an infective agent is filterable. Porcelain filters, still in common use, present such large surfaces that unless the filterable virus is

present in considerable quantity it may be completely adsorbed by the substance of the filter. In consequence negative results are not infrequently obtained in attempts to pass undoubted viruses through porcelain filters. The use of the ultra-centrifuge is, of course, confined to those few laboratories in which this somewhat elaborate apparatus has been installed. Ultramicroscopy also demands extremely specialised apparatus and technical skill, and the use of ultra-violet rays in the photography of virus particles requires a microscope with the lenses made of quartz instead of glass. Recently an entirely new method of ultra-photography has been devised, involving the use of beams of electrons, and by this means objects may be photographed far below the limit of even ultraviolet ray photography. (*See* Krause, 1937, and V. Borries and Ruska, 1938.) In this ' electronic " microscope, beams of electrons are straightened out in a magnetic coil, passed through the specimen to be studied and focused in another coil. Since electrons affect photographic emulsions, it is possible to obtain photographs of the magnified objects. The resolving power is said to be 25 times that of the ordinary microscope ($0{\cdot}2\mu$), therefore by this new method it should be possible to obtain photographs of virus particles even so minute as those of foot-and-mouth disease.

The X-ray investigation of virus preparations has also given valuable results and indicates the possibility of developing a system of classification on the basis of their X-ray patterns. (Bernal and Fankuchen, 1937.)

Another characteristic feature of viruses is their power under appropriate conditions, of indefinite multiplication, also a characteristic of living matter.

Finally we come to an extremely important characteristic of living organisms, *viz.*, their antigenic individuality and power of variation.

The maintenance of antigenic individuality irrespective of the tissue or animal species in which the virus is grown is of great significance. If a human strain of herpes is adapted to the guinea-pig and an anti-herpes serum prepared, this serum will neutralise specifically not only guinea-pig strains of herpes, but also human and rabbit strains. The same results are obtained by the use of complement fixation.

Similar results have been demonstrated in the case of anti-vaccinia serum, produced in guinea-pigs, which will react specifically with vaccinia virus of guinea-pig, rabbit or human origin. If filterable viruses are unorganised non-living agents their multiplication in living tissues must result from changes in the affected cells producing more of the agent which caused the initial change. We should expect an agent of this sort to bear the antigenic imprint of the animal species from which it arose. This is not the case, and to explain this absence we should have to assume that the virus was something in the nature of a haptene which, uniting with the cell degeneration products, gives them a new antigenic value, a virus specificity. A much more reasonable explanation of these facts is the view that viruses are independent living beings.

To prove the existence of variations in the virulence of any parasite is difficult, for one has to deal with two variables, the parasite itself and the host. The variation of the host may be expressed in many different ways; increased difficulty experienced by the parasite in gaining access to the host; changes in the response of any protective mechanism, such as immune body formation; possible influence of concurrent infections, etc., etc. All these factors and many others have to be taken into account in assessing the significance of any variations in the severity of symptoms or in mortality; this aspect of the problem has to be approached statistically. But there is one type of variation that many viruses have been shown to undergo, *viz.*, the attacking of different types of cells from those normally invaded, which can definitely be attributed to changes in the parasite itself. One of the most striking examples of a change in habit of this nature is shown by yellow fever virus. Normally this virus attacks mainly the liver, producing certain characteristic changes, but if the virus is brought into intimate contact with nerve cells by intra-cerebral inoculation into mice, it may change its—shall I say?—" feeding habits," and acquire the property of attacking nerve cells instead of hepatic cells. Such a virus, with affinities for the nervous system, is known as a neurotropic virus, and many viruses have been shown to be capable of acquiring this property. I shall only refer to them briefly in connection with the light they throw on the general problem of the nature of viruses. Neurotropic yellow fever virus has been maintained in serial passages from brain to brain for hundreds of generations without reverting to the type which attacks the liver, but the reverse process is possible. When neurotropic virus is inoculated into the liver of a rhesus monkey it changes its predilection for nervous tissue and may be found in the liver, spleen and blood, and after a few passages reverts to the ordinary form attacking the liver and only exceptionally the nervous system. (*See* Findlay, 1937.)

The alteration in yellow fever virus from the form attacking the liver to the neurotropic variety, seems to be more of the nature of a fluctuation than a mutation, for intermediate stages occur, and the fact that reversal of the process can be effected by altering the environmental conditions also supports this view.

Sometimes variant strains of viruses arise spontaneously; the disappearance from this country of smallpox and its replacement by the more benign alastrim may be due to such a phenomenon. Generally, however, variants have been produced artificially by repeated passage of the virus through the tissues of an animal only distantly related to the host. The best known example is, of course, vaccinia virus, formed from the virus of smallpox by passage through the calf and rabbit.

The relationship of these modified viruses to their parent strains is of considerable interest, but their new characters seem to be definitely a response to changed environmental conditions, and in this respect they resemble the larger animals and plants.

I would emphasise that the change from ordinary yellow fever virus to the neurotropic form, is a gradual one; there is evidence of a series of intermediate forms. Moreover, all forms produce cross-immunity, *i.e.*, recovery from any one of them renders the animal immune against the others.

Turning now to variations in pathogenicity, we have to face the difficulty of variations in the host, but it is hardly necessary with the present audience to mention the well-known fact that different epidemics of the same disease may be associated with a different train of symptoms.

I have stressed this aspect of filterable viruses since in the case of plant viruses the infective agent of tobacco mosaic has been obtained in the form of a crystalline protein by Stanley (1935) and there has been a tendency to construe this fact as an indication that this virus is not living. However, Bernal and Fankuchen (1937) have shown that these needle crystals are not really crystalline in the ordinary sense of the word, since they have only a 2-dimensional regularity instead of a 3-dimensional one, and are better described as fibres or paracrystals. Moreover, at least 20 different varieties of this infection are known, yet all those tested have the same size of particles and give similar or identical serological reactions.

Immunity

The immunological aspect has dominated most of the work on virus diseases, and it is obviously of outstanding practical importance. In the majority of virus diseases, recovery from infection is followed by a long standing immunity sufficient to afford protection against a second attack, and in the case of yellow fever, for example, immune bodies can be demonstrated in the serum even 60 years after the original infection. However, virus infections show considerable variation in this respect and such diseases as herpes simplex, foot-and-mouth disease, and the common cold, have only transient immunity responses. In addition there are cases of balanced infections where the virus lives in the host without producing any serious damage. As examples of such infections I may mention herpes in man, salivary gland virus in guinea-pigs, Virus III in rabbits, and probably the agent producing the intra-nuclear bodies which I have found in the kidneys of sewer rats from various parts of the world (Hindle, 1932). I think it likely that further investigation will show the existence of many such examples for it is obviously a disadvantage, from a survival standpoint, for a parasite to kill its host.

Even in the case of highly pathogenic infections, one may expect in course of time a gradual diminution in virulence, since strains of lower virulence would have a better chance of surviving than more deadly ones. Subclinical infections must play a very important rôle in the epidemiology of a number of virus diseases, for even in the case of yellow fever, some of the laboratory infections have been so mild as to escape notice, and only subsequent blood examination proved their nature. In addition a large percentage of African natives are found to be immune to yellow fever even in districts from which no clinical cases have been recorded.

It is hardly necessary to mention the difficulties met with in the study of such animal diseases as dog distemper, and feline distemper, owing to the widespread occurrence of subclinical infections followed by immunity.

Passive Immunity.

The injection of immune or hyper-immune serum has a very restricted application, since the immunity produced is of short duration, not exceeding two or three weeks. However, in the case of measles it has given good results both in preventing the onset of the disease and in decreasing the severity of the attack; and it is said to be of value as a prophylactic in poliomyelitis if given before the appearance of any clinical symptoms.

Active Immunity.

It was formerly believed that infection was essential for the establishment of active immunity against a virus, but it has been proved beyond doubt that in many cases it is possible to immunise by the injection of so-called "killed" virus (*e.g.*, herpes, dog distemper, psittacosis, influenza, equine encephalomyelitis, yellow fever, rabies, etc.). Nevertheless in many instances viruses, whatever method of "killing" is employed are extremely poor immunising agents.

Nearly all effective methods of vaccination utilise live virus, and depend on the establishment of a subclinical infection for the

production of immunity. This subclinical infection may be produced by the use of one or more of the following methods: (1) The inoculation of active virus into some tissue where the pathological changes are of little importance. For example, in the immunisation of human beings and monkeys against psittacosis by subcutaneous injections of virus; of cattle against pleuro-pneumonia by the inoculation of virus into the tail; and of fowls against laryngotracheitis by cloacal inoculation.

(2) The inoculation of active virus together with sufficient immune serum to prevent *clinical* infection; but the serum must not be given in excess, otherwise the infection is completely suppressed and no active immunity develops, consequently strict quantitative control is necessary. This "virus-immune serum" method has been used with success for vaccination against yellow fever, and in various animal infections, such as rinderpest in cattle, swine fever, African horse-sickness, dog distemper, feline distemper, etc.

(3) The inoculation of attenuated virus to produce a mild infection. This method has been used successfully in the prevention of a variety of infections. The best known example is vaccination against small-pox by means of vaccinia. The virus may be attenuated by physical or chemical agents, as in the case of rabies, dog distemper, etc., but the majority of viruses treated by chemicals retain immunising properties only in so far as any virus is left alive. The "coating" of the virus by mixing suspensions with egg-yolk or vegetable oils constitutes another application of this method and has been used with success for reducing the activity of neurotropic yellow fever virus.

Biologically modified strains of viruses seem at present to offer the most satisfactory means of applying this method. Such strains may be developed by a variety of environmental changes. The commonest method is by growth of the virus in a different tissue from that generally attacked, usually in another species of animal. Neurotropic strains of yellow fever, herpes, horse sickness and fowl plague have been produced by passage of the respective viruses in the brains of mice, and in all these cases, whilst the pathogenicity for nervous tissues is greatly increased, the ordinary pathogenicity is reduced. The subcutaneous or intraperitoneal inoculation of such neurotropic strains produces an immunological response seemingly identical with that following the injection of unmodified virus, but usually without the development of any serious clinical symptoms. Such neurotropic variants can also be produced in the brains of the same species affected by the virus, as in the case of vaccinia, myxoma and Rift Valley fever virus in mice; fowl plague in canaries, and yellow fever in monkeys. In such cases it is generally necessary to give an intraperitoneal inoculation of immune serum shortly before the intra-cerebral injection of virus, in order to prevent the ordinary strain causing death from generalised lesions before the neurotropic strain has had time to develop.

The growth of the virus in the same tissue but in a foreign host sometimes produces variants, as in the classic example of the production of vaccinia from smallpox virus, by growing it in the skin of the calf or rabbit. In this case the pathogenicity for the rabbit is increased, but for primates decreased. The production of fixed rabies virus from the street strain by passage in the brains of rabbits is yet another example.

Variants may also appear when the virus is grown on the chorio-allantoic membrane of the developing fowl embryo. Influenza virus grown in this way has been used for the vaccination of ferrets and mice against this infection.

Similarly, prolonged growth in culture media containing embryonic tissue may lower the pathogenicity of a virus to such a degree that, as in the case of yellow fever and fowl plague, the subcutaneous injection of such strains produces immunisation without any other signs of infection. Another method that has been used is the prolonged growth of pantropic yellow fever virus in mouse carcinoma *in vivo*, which greatly reduces its virulence for monkeys.

Finally reference should be made to the phenomenon of virus interference. It was first noted in the case of certain plant viruses that infection with one strain protected against another strain of the same virus. A similar phenomenon has been described by Hoskins (1936) in the case of yellow fever, who found that although rhesus monkeys inoculated with the pantropic virus alone succumbed, they survived when the inoculation of the pantropic virus was followed within a few hours by an injection of neurotropic virus. Findlay and MacCallum (1937) confirmed and extended this observation, but showed that the reverse was not the case, since pantropic yellow fever virus did not protect against the neurotropic strain. On the other hand a pantropic strain of Rift Valley fever virus also protected monkeys against infection with pantropic yellow fever virus. The protection does not seem to be connected with the presence of immune bodies and it is suggested that the entry of the cells by the milder virus may protect them against invasion by the more virulent one. Since unrelated viruses failed to show this interference effect it is suggested that in the above-mentioned cases, both viruses in some way combine with or use up the same chemical groupings in the cell, and therefore when one virus has occupied the cell there are no free groupings available for the other virus.

However the problem of interaction between two or more viruses requires much further investigation.

In the short time at my disposal I have only been able to refer to a few of the many recent discoveries on this subject, a fuller account of which, together with references, may be found in recent summaries by Burnet, Keogh and Lush (1937), Findlay (1937), and Bedson (1937). The results already obtained in the comparatively short time that viruses have been investigated, would certainly seem to suggest that in the near future methods of control will be found for all virus diseases affecting man and animals.

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The foregoing paper was the first to be discussed by Congress, Dr. W. S. Gordon (Moredun Institute, Midlothian) presiding over the well-attended session at which it was presented, at the Concert Hall of the Empire Exhibition, Glasgow, on the morning of Monday, September 5th. At the outset, Dr. Gordon extended a warm welcome to the assembly and continued: We are privileged to have as our essayist to-day Professor Edward Hindle, Regius Professor of Zoology at Glasgow University. Professor Hindle's researches in the field of zoological science are varied, numerous and well known throughout the world. Although he is now Professor of Zoology much of his earlier work concerned the nature of filterable viruses and their association with the causation of disease in man and animals. His work on yellow fever in man has been of great value to all interested in the study of filterable viruses, and his work on feline distemper is known not only to those interested in virus infections but to all members of the veterinary profession. Ladies and gentlemen, it is my privilege to extend on your behalf a very cordial welcome to Professor Hindle, and I will now call upon him to introduce his paper, entitled "Filterable Viruses, with Special Reference to Immunity."

Introduction

Professor Hindle: First of all I should like to express my heartiest thanks for the very great honour which you have done me in inviting a layman like myself to open a discussion at this memorable meeting. I do it with very great pleasure, because, apart from the interest of the subject—and I consider the nature of filterable viruses one of the most interesting problems of the present time—members of the veterinary profession have contributed very largely to our knowledge of it. I need hardly mention the fact that the first animal or human virus to be discovered was that of foot-and-mouth in 1898, and since then much of the work on virus infections has been done by members of your profession.

I am told it is not the custom at these meetings to allow the opener to talk for more than a few minutes, which is perhaps a very good rule, but I have been given the opportunity of amplifying one or two of the statements made in my printed introduction to this discussion, as that article is very brief and in it I have only been able to refer to one or two aspects of the subject. The week before last I attended the meeting of the British Association at Cambridge and there saw some new work on the subject which has led me to modify at least one of the statements made in my paper, namely that concerning the crystalline nature of plant viruses, though how far these results are applicable to the study of animal viruses is a very difficult question. As most of you are aware, certain plant viruses have been obtained apparently in a more or less pure state, and in my introduction I mention that they have only a two-dimensional regularity. Recently, however, "Bushy Stunt" virus has been shown to form crystals with a three-dimensional regularity. I was shown examples of these crystals by Dr. Pirie and also some of their optical properties, and there seems to be little doubt that these plant viruses can be obtained in crystalline form. What this means is, however, difficult to interpret, for how are we to regard these viruses? We might regard them as either extremely primitive forms of living matter or beings at the extreme of degeneration. We know that parasitic organisms tend to become more and more degenerate and to lose their various structures, and we could conceive an organism gradually losing its characteristics until nothing was left but a particle of nuclear material. This is one theory, and, in support of such a hypothesis is the fact that the crystals which have been obtained in the case of tobacco mosaic virus are composed of nucleo-protein. With reference to animal viruses, however, I still consider that the most useful hypothesis

at the present time is to regard them as living organisms; their behaviour, the responses which they call forth in their hosts, their reactions to chemical and physical agents, and, above all, their variability, all support this view. I find it very difficult indeed to conceive of a protein molecule being capable of varying so as to produce the different races of any particular virus which we see in nature, and it is a curious fact that even those plant viruses which have been obtained in crystalline, or, at any rate, fibrous form, display just as much variation as animal viruses. Certainly plant mosaic virus shows a number of different races or strains, although all seem to have the same crystalline form.

I should like to refer briefly to some of the methods now used in the study of viruses. The most recent is the use of the electronic microscope, which, incidentally, was referred to by Lord Rayleigh in his Presidential Address to the British Association for the Advancement of Science. This microscope opens up a new method of studying the particulate nature of viruses, because by its use one can get a shadow photograph of particles as small as ten millimicrons in diameter, which is at least fifty times below the limit of resolution of the highest powers of the ordinary microscope. I have seen reproductions of photographs of colloidal particles taken with this microscope. The particles appear only as minute specks, but by the use of such an instrument it should be possible to settle the question as to whether a virus is homogeneous — that is, composed entirely of particles of similar size—or of particles of different sizes, as suggested by certain authorities. But I should mention that at present the use of this electronic microscope is quite beyond the capacities of the ordinary biologist. A stream of electrons is used, and these electrons are focused by means of electric coils. The whole apparatus is very elaborate and I think could only be employed usefully by a physicist.

This morning attention is being restricted to a problem of very great practical importance, namely the question of immunity. Moreover, it is an encouraging problem for there is no group of diseases in which the study of immunity has given such immediate and favourable results. Some virus infections produce a lifelong immunity, and in general they seem to be more easy to deal with than most bacterial or protozoal infections. Certainly most of those that have been studied intensively have given favourable results. Of course, one of the outstanding diseases in which practical difficulties have not yet been surmounted is foot-and-mouth, in which we are still employing slaughter, which can hardly be considered a very satisfactory method of dealing with the disease. However, there are many difficulties in the question of foot-and-mouth disease, especially in the existence of antigenically distinct strains, and I very much regret that Dr. Galloway, who was going to give us the latest information on this disease, is not able to be here to-day.

The method which has been commonly used for the production of immunity in virus infection is the use of live virus. The live virus may be introduced into an animal by such a route as not to produce a dangerous infection, or, more commonly, the live virus is modified or attenuated in some way so that when inoculated it does not produce any serious results. One of the most dramatic examples of such a modification is the case of yellow fever. Normally when this virus is inoculated into a rhesus monkey it produces an infection which is usually fatal in four or five days, but if the same virus is inoculated into the brain of a mouse—an animal not normally susceptible to yellow fever—one finds that the mouse dies of encephalitis within about ten days, and by taking a bit of an infected brain and inoculating it into the brain of a second mouse, and so on, after passage for a few generations in the brains of mice the virus loses its power of producing ordinary yellow fever in monkeys or men.

But although not producing the disease the inoculation of this neurotropic virus into a man or monkey calls forth the same protective reactions, and the inoculated individuals become immune against the ordinary strains of the disease. This virus is used in one of the methods of vaccination against yellow fever.

However, in this country we have always objected to the use of live virus, and I think with reason, although when dealing with animals the objections are perhaps not quite so strong as when dealing with human beings. The main objection to the use of modified or attenuated live virus is the fact that the process may be reversible.* For example, it has been shown that in the case of neurotropic yellow fever virus, even after four or five hundred passages in mice, the virus can still be reconverted into the ordinary form which attacks the liver and causes the usual symptoms of yellow fever, and if this can be done experimentally, it is not inconceivable that such a change might occur spontaneously.

One aspect of immunisation which I feel I have not dealt with sufficiently is the use of inactivated virus. Up to the present this method has given somewhat mixed results. It has been used with success in immunisation against dog distemper, where formalin is the usual inactivating agent. It would appear, however, that viruses present very great individual differences in their reaction to various

inactivating agents, and in most instances it has not been found possible to inactivate the virus without destroying its antigenic properties. I think there is a field for work in the use of other inactivating agents. Up to the present those most commonly used include heat, drying, phenol and glycerine, formaldehyde, and exposure to light after mixing with certain dyes, especially methylene blue. From experience with plant viruses favourable results might be obtained by the use of such agents as hydrogen peroxide, sodium dodecyl sulphate, or nitrous acid, the latter in particular, since it has been shown to inactivate potato virus X, leaving its antigenic properties unchanged.

These and many other agents might be tried in order to produce inactivated virus, because I am of the opinion that such a vaccine is far preferable to one containing active virus.

In conclusion, I would say that the present position of viruses is a hopeful one. A very large amount of information has been accumulated in the short time they have been investigated, for very little work was done on them until after the war. The results that have been obtained in these last few years certainly suggest that in the near future methods of control will be found for all virus diseases affecting man and animal. (Applause.)

Discussion

Professor T. Dalling, M.A., M.R.C.V.S. (Cambridge), who was the first of the openers of the discussion to be called upon, said:—

The N.V.M.A. is to be congratulated on the choice of this subject for discussion and especially on the choice of the writer of the paper. Professor Hindle has much practical experience concerning the investigations into disease producing viruses, especially that causing yellow fever, and in the relatively short paper he has prepared he has taken us over many of the more recent and highly important discoveries concerning virus infections. I desire to record my appreciation of his paper and also the honour bestowed on me by allowing me to participate in the opening of the discussion of the paper prepared by my former colleague.

It is somewhat difficult to know exactly which aspects of the subject to deal with in the space of ten minutes and I therefore have decided to confine my remarks to four points, all of which I think have a practical bearing, from the veterinary surgeon's point of view, on virus infections. Naturally they will refer to virus diseases with which I have worked, especially canine distemper and fowl pox.

(1) *Resistance of Viruses.*

Disease-producing viruses vary enormously in their ability to resist the action of external influences. It is only with some difficulty that the virus of canine distemper can be kept virulent outside the animal body and in this respect it differs greatly from the virus of feline enteritis. In the case of the former, it is a comparatively easy matter to rid premises from infection, while following an outbreak of true virus feline enteritis there is little short of actual destruction of fomites, etc., which will ensure freedom from infection. The preservation of canine distemper virus in a virulent state has, to those of us who have been responsible for this work, presented great difficulty. Tissue containing the virus, *e.g.*, infected ferret or dog spleen, etc., will retain the virus for long periods in a comparatively virulent state so long as the tissue is kept frozen hard. The thawing of such frozen tissue is attended by the destruction of a certain quantity of the virus but if the initial virus content of the tissue was high there will remain, after such a procedure, a reasonable amount of virulent virus. Repeated freezing and thawing, however, soon causes great loss in virulent virus due in all probability to the rendering of the virus into a "naked" condition. It would appear that, as far as distemper virus is concerned, so long as it is linked on to some substance, *e.g.*, protein, the virus can be adequately preserved. Remove the "protection" of protein, etc., so rendering the virus "naked," then its life is very short indeed. A somewhat similar phenomenon exists in the case of fowl-pox virus. So long as the virus contained in the scaly material is left undistributed it will remain infective, but by grinding up the scales after drying and so liberating the virus in a "naked" condition, the "life" of the virus is definitely decreased and its infectivity is not of long duration.

(2) *Adaptation of Viruses to Animals.*

It is well known that canine distemper virus causes disease in dogs, ferrets and foxes. For some considerable time there was some doubt whether distemper virus infected foxes in captivity in this country, though such infections had been proved to occur in Canada. During the last year of my association with distemper work, we recovered typical canine distemper virus from two silver foxes in different ranches. We had known, of course, that foxes could be infected by injection with the virus obtained from infected dogs or ferrets for we were able to show that infection of the fox could only be effected with some difficulty. It was shown that foxes injected with such virus could harbour in their tissues virus in a fully virulent state for the ferret and the dog without they themselves showing obvious symptoms of disease. After about three passages direct from fox to fox the virus evidently became "established" for the fox and infected with regularity. Such

"established" virus was still capable of infecting typically dogs and ferrets. This seems to me to have some practical importance and one wonders if the delay in the establishing of the strain for the fox has some bearing on the paucity of apparent infection in the fox ranches in this country. Veterinary surgeons who number fox ranches in their practices should bear in mind that foxes can and do suffer from pure distemper virus infection. We were also able to establish that virus of dog and ferret origin, as used in the immunisation of dogs, was capable of setting up an immunity in foxes, though there was some evidence that the degree of immunity was not of such a high order as was obtained in the dog and ferret when their respective viruses were used.

The virus of dog origin is highly virulent for the ferret and when repeatedly passaged through the ferret tends to remain comparatively highly virulent for the dog. After repeated passage in the ferret, however, a time is reached when the virus may fail to infect dogs and with further passage in the ferret the virus loses much of its virulence for that animal till it becomes apparently avirulent though still antigenic. These findings, I think, bear out some of the points referred to by Professor Hindle.

The antigenic nature of viruses adapted to different animals is of much interest. That they retain much of their specific antigenicity is very obvious for after passage through and adaptation to other animals they may still set up immunological response when used as antigens in the original animals. It often means that the response is of low order or that several stimuli are necessary but there is much evidence that immunity does develop. For example, in the case of canine distemper virus, while so-called "killed" virus of dog origin sets up a high, though temporary, degree of immunity in dogs, it requires at least three injections of the same virus to produce demonstrable immunity in the ferret. In connection with fowl pox, as you know pigeon pox virus is used for immunity production. With this virus a temporary immunity of fairly low order only is set up, while if fowl pox virus itself is used, as is carried out in America, the immunity is of high and lasting order.

(3) *Pure Virus Infections.*

In connection with canine distemper, one of the most important points concerning the veterinary practitioner is the difference between pure virus infection and that much more common occurrence which we can designate "field" distemper and which is so much more commonly found in practice. In my experience it is comparatively rare to find in the field a pure virus infection. Uncomplicated virus infection is usually a fairly mild disease and I feel safe in saying that in many cases, except when careful observations are carried out and temperature taking is a routine procedure, cases of pure virus infection will pass unnoticed. It is very probable that where dogs are kept individually this mild disease has resulted in the immunisation of the dog against subsequent infection. I feel satisfied that, in many cases, the dog itself may be carrying the secondary infecting organisms and thus once the initial infection with virus has "opened the route," the residual organisms are able to exert their pathogenic influences. I also feel, however, that the passage of such secondary infecting organisms through a series of virus infected dogs may result in the raising of their virulence to such an extent that they can, and do, cause disease processes in dogs without the presence of the initial virus infection. There is little doubt in my mind that this does occur but on the other hand, in all probability, the bulk of distemper begins as a true virus infection. In pure uncomplicated virus infection, even with virus of high virulence, the duration of the symptoms portrayed is short, though invasion of the central nervous system by the virus may prolong the course and cause unremediable disease. There is little doubt that the virus can enter the central nervous system and on its recovery from that situation it still retains its old properties and does not necessarily again cause symptoms involving the central nervous system. In this respect distinction must be made between the invasion of the the central nervous system by a virus and its acquiring neurotropic qualities. Some work we carried out a few years ago in collaboration with my former colleague, J. H. Mason, in which we used ferrets, showed that it may be possible to adapt canine distemper virus to the central nervous system of ferrets so that when injected by the usual routes it failed to cause infection. I am not aware that this work has been proceeded with to any further extent.

Green has shown that a virus can be recovered from the brain of foxes showing symptoms of encephalitis and that apparently it is entirely different from that of canine distemper. My colleague, Innes, and myself had the opportunity of examining this virus and can confirm that it is distinct from that of canine distemper. We were able to show that dogs are susceptible to intracranial infection with the virus and that dogs immune to canine distemper are still susceptible to the infection. The symptoms set up by this virus in the dog are entirely different from those due to the virus of canine distemper. One other point is that ferrets are not susceptible to the fox virus. As far as I know this fox virus has not been recovered in this country. I feel, however, that veterinary surgeons should be on the look-out for it both in foxes and in dogs.

As you know, Pugh described outbreaks of some infective condition of dogs which we proved was not true virus distemper. I still feel there is a field for research in connection with these outbreaks and that search should not be given up concerning a possible new virus.

(4) *Immunity Problems.*

Professor Hindle has dealt briefly with the methods in common use for the induction of immunity to virus infections. You are all well acquainted with the methods used in connection with canine distemper. While the degree of immunity so produced is of high order, I do feel that we have not yet reached the ideal method of producing immunity. To obtain satisfactory immunity it is necessary, evidently, to use a living virus. It is true that a temporary immunity of high order can be established with so-called "killed" virus, especially homogenous virus. One dose of such a material will, in our experience, set up immunity for a period of about four weeks, beginning about the fifth day, reaching its maximum in 10 to 14 days and then gradually waning. A second dose injected about three weeks after the first will considerably extend the duration of the immunity. By direct methods its presence can still be detected for three to four months and by indirect methods, *e.g.*, neutralising value of the dog's serum, antibodies can be detected for longer periods. Incidentally, the presence of immunity can be readily shown by this indirect method.

The amount of virus in the treated tissue has a very considerable bearing on the degree of immunity set up by the use of "killed" virus. I have often wondered if the virus in such vaccine is truly destroyed or whether it is simply rendered into such a state that it is no longer infective and that antibody production is established before the attenuated virus is released from the tissues. In connection with the use of these vaccines, may I here plead for the exercising of care by the veterinary practitioners in ensuring that their subjects are not already in an infected state when immunisation is commenced. One has seen such disastrous results on occasions when full care was not taken in this respect.

The use of living, potent virus, whichever method is adopted, is followed by strong, lasting immunity and the use of vaccine or of serum is simply to ensure that the virus is not allowed to exert its pathogenic effects and cause symptoms.

It may be, in the future, that canine distemper virus will be so altered that it will be non-infective for dogs but still antigenic. We have had viruses that apparently lost their virulence to such an extent that they no longer infected dogs or ferrets but produced good immunity. I have always been a bit frightened of using such viruses because of the possibility of their re-acquiring virulent characters. I think that future work should consist in modifying the virus biologically, *i.e.*, through different animals or in other tissues of the susceptible animals or by some chemical or physical means as we are led to believe has been successful in the modifying of the virus of foot-and-mouth disease virus, so that it is no longer infective but of good antigenic value.

The persistence of virus in animals is of much importance. We know, for instance, that the virus of infectious equine anaemia persists in horses for years. Such animals apparently do not become immune though acutely affected with the disease but continue to harbour the virus which at irregular intervals invades the blood stream and gives rise to symptoms of the acute disease. Concerning canine distemper, there is no evidence to suggest that dogs harbour the virus after they have become immune, except perhaps as a foreign substance.

These few remarks are, I am fully aware, all of a somewhat practical nature. There are those to follow in this discussion who can deal much more adequately with the purely laboratory side of viruses and virus infections.

Major G. W. Dunkin, M.R.C.V.S., D.V.H. (Compton, Berkshire), who also made an "opening" contribution to the discussion, said: Professor Hindle has, with his customary cheerfulness, attacked with laudable comprehensiveness a subject which, as the result of considerable attention in recent years, has attained a scientific importance which cannot yet be adequately assessed.

He would be the last person to say that he had dealt with such a stupendous question, as the title of his paper indicates, with that completeness which it demands. My personal opinion is that the subject under discussion is much too comprehensive to be dealt with in the time at our disposal this morning, and I would have preferred that we had to consider one phase of virus immunity only. For example, we could very properly and profitably spend a whole morning arguing the debatable subject of inactivation and all its implications.

Within the narrow confines of ten minutes one can only attempt meagrely to enlarge on Professor Hindle's excellent stimulus to serious thought.

Dale, in his Huxley Memorial Lecture of 1935, stated that "on the theoretical side the study of viruses has raised questions of such fundamental biological interest as that of the lower limit of size compatible with the conception of living organisms" and we might add here such important questions on the practical side as the artificial production of immunity in the susceptible animal. Observations which led to the description of viruses as "filterable" or

"ultra microscopic" were not very informative and no information as to their actual size was forthcoming beyond the fact that they were below a certain maximum. It is of course suggested that the term "filterable" indicates that these tiny units are sufficiently small to allow them to pass through porous earthenware vessels, but such a determination as is indicated by Professor Hindle, is of small value when one considers that the pores of even the best made filters are by no means of equal size.

A considerable step forward has now been made as the result of the researches of Elford and, as Professor Hindle has pointed out, the "gradocol" membranes enable us to state within very narrow limits the relative size of most of the viruses with which we are concerned to-day. It is still a matter of regret, however, that the acid test still remains the susceptible animal, for up to the present time all efforts at artificial cultivation have failed.

It has been said—I think with some degree of truth—that probably the subject of immunisation against virus diseases is very closely linked up with that of artificial cultivation.

At present all our efforts at immunisation against a virus disease are confined to the use of inactivated or attenuated viruses and to a more limited extent by the use of hyperimmune serum. Rivers, discussing the question of inactivation, regards it as a question which is not easy to answer because, he says, it is extremely difficult in the present state of our knowledge to say when a virus has been completely inactivated, our only criterion for the existence of a living virus being the disease it produces in a susceptible animal. It is the fact, as Professor Hindle states, that inactivated viruses alone do not provide a lasting immunity, but in certain cases it is definitely active in that at its height, the patient will withstand a heavy dose of virulent material with impunity. It was this discovery which led Laidlaw and Dunkin to adopt the method as a means of inducing a lasting immunity in dogs against distemper. This procedure may be all very well in the case of animals of the lower orders, but I doubt very much if the practice will ever attain even a small measure of popularity where human beings are concerned.

Whilst I am on this subject I should like to refer to what has been described as the balance between vaccine and virus; that we must, in fact, secure the proper balance of the two agents before we can expect a satisfactory result. Quite frankly I do not know what is meant by this expression of opinion. In my view the only balance that is necessary—and here I speak of dog distemper only—is that the vaccine must have been prepared from tissue very rich in virus before treatment to bring about inactivation and that the virus must be of the highest potency. My conviction is that if we have these conditions fulfilled, the patient at the time in a good state of health and the operator a careful, painstaking and knowledgeable man, the result is bound to be that which we anticipate and hope for.

In support of this view I would cite the cases of the puppy who, having received vaccine, meets and is accidentally put in contact with an open case of the disease after the lapse of a week or ten days and the puppy who, having received hyperimmune serum, meets a similar fate in three or four days or even earlier. Both these animals, although had they not had this experience would ultimately have reverted to their susceptible state, will most probably develop an active and lasting immunity. I add that we are entitled to expect such a result but the balance, if balance there be, has been a most fortuitous one.

In dog distemper of course, we have a disease recovery from a natural attack of which, results in lifelong immunity and in that we are fortunate, because we are entitled to expect the same result to follow satisfactory artificial immunisation.

Professor Hindle refers to the use of "attenuated virus" and suggests that viruses in this state retain their immunising properties *only* in so far as any virus left alive is concerned. I gather from the text that since he refers to the process of inactivation being brought about by physical and chemical agents, he concludes that viruses so treated are only *mostly* killed. In other words. the formalised vaccines used in distemper, cattle plague, etc., are properly described as attenuated viruses.

If my surmise is correct, I am tempted to ask what proof there be that any virus at all is left alive, seeing that our only criterion is the susceptible animal? Is it not more likely that the term "inactivation" is the more correct and that "attenuation" should be confined to that state which is acquired by animal passage wherein a degradation of virulence is attained while actual life continues?

The method of inactivation of viruses described by Clifton, Todd, and Perdrau and others in which they subjected filtrates of infective material to the action of irradiation in the presence of methylene blue is an instance which I have in mind. In this case they found that by subjecting their prepared material to irradiation for a certain length of time, it was not possible to produce infection in susceptible animals, but that animals so treated remained, in some cases, resistant to the subsequent injection of living virus. If the time during which irradiation was practised was reduced, then infection took place.

Whether or not the treatment of viruses in this way or by certain well known chemical or physical means really kills the organisms out-

right, must remain a matter for conjecture until we have other means than the susceptible animal for a test.

The nature of the immune state resulting from a natural attack of the disease or that produced by artificial means, also provides much ground for conjecture. Is the immunity due to the persistence of the specific antibodies in the animal system, to the constant stimulation of the antibody factory by the admission of virus received as a result of frequent contacts with "open" cases of the disease, *or,* is it due to the persistence of living virus in the animal system which, by its presence, causes a constant stimulus to the manufacture of fresh antibody?

The correct explanation is not clear, but in view of the fact that administration of virus must take some place in securing active and durable immunity, the explanation probably lies in the suggestion that living virus persists in the tissues of the immune animal which thus becomes a perpetual carrier of the disease. It must be admitted that there is a complete absence of evidence in support of this contention in the case of dog distemper and all attempts to isolate the virus from recovered or immunised animals, even from those which have been suspected of being carriers, have failed. None the less, it appears to be the most satisfactory explanation of the lifelong immunity observed in this disease.

Finally, let me conclude by quoting a statement made by my late colleague Captain S. R. Douglas. ". . . Let human and veterinary investigators work hand in hand to gather new facts and devise new methods, and when any results are obtained having a practical application, let human or veterinary practitioners test such procedure in the field or the hospital with due care and just criticism, so that their true practical value may be quickly ascertained."

Before I sit down, if you will allow me, I would like to make a brief reference to one or two points mentioned by Professor Dalling. Professor Dalling referred to the curious, and I think he also said inexplicable attenuation which seems sometimes to follow laboratory passage of distemper virus through susceptible animals. With that, of course, I entirely agree. The almost classic instance experienced by Sir Patrick Laidlaw and I when we were working on dog distemper is still fresh in my mind. We started with the original Rhodes virus and it was, as Professor Dalling will remember, dog virus, and after various laboratory manipulations spread over some years it not only failed to infect dogs but also ferrets and was lost altogether. That state of affairs is inexplicable, because as practical men we cannot conceive such a state of affairs occurring in nature. Rather the contrary is the case.

Another point mentioned by Professor Dalling was the question of pure virus infection plus some infection superimposed by one or more secondary invaders. I rather think, although I do not know, that here I am not absolutely in agreement with my friend Professor Dalling. I do not think where distemper itself is concerned that the most common secondary invaders with which we are concerned, namely *B. bronchisepticus,* or one or other of the streptococci, are of much account if the dog itself is immune to the virus disease. I say that for two reasons; firstly because I think it will be admitted that immunisation against attacks by *B. bronchisepticus* has not so far protected dogs against distemper, and, secondly, dogs that have recovered from natural attacks of distemper, whether associated with secondary invaders or not, and dogs which have been immunised against the virus disease will, we know from experience, withstand on the one hand any amount of pure virus or any amount of actual contact with outbreaks of the disease in the field in which secondary invaders are known to exist. It is those two factors which force me to the conclusion that these secondary invaders are of little account if the animal in question is itself immune to the virus disease.

In regard to the neurotropic virus (so-called), this term has been applied to the distemper virus when it makes its appearance in the central nerve system, producing nervous symptoms, but it is doubtful if this is a correct description, because in this disease, as Professor Dalling says, there is no guarantee that its passage to susceptible animals will result in such symptoms. Indeed, the contrary is usually the case. Since the expression "neurotropic" suggests the central nerve system as being a predilection seat for the virus, it would appear that such a description of the distemper virus, even when nerve symptoms have made their appearance, is improper.

The Chairman: Ladies and gentlemen, both Dr. Andrews and Dr. Galloway are unable to be present to-day but we have with us Dr. Cameron, who was a long time in Edinburgh and who is now in Canada. We welcome him here, and we would be very glad indeed if he would address the meeting.

Dr. Thomas W. M. Cameron, M.A., D.Sc., PH.D., M'Gill University, Montreal, Canada, continuing the discussion from the platform in place of one of the two other announced openers, who found themselves unable to attend, said: When I was a boy I was told that the great difference between an Edinburgh man and a Glasgow man was that when you went to see an Edinburgh man he invited you into the parlour and showed you the family album, but if you went to see a Glasgow man he invited you into the kitchen and gave

you a cup of tea. When I came here this morning I had not intended to speak at all, but the President, who is an Edinburgh man, has invited me into the parlour and shown me the family album. I am very glad he had done so, for three reasons: first of all because Professor Hindle is a very old and valued friend of mine and one of the leading authorities on virus diseases in the world; secondly, because for the time being, I am representing that branch of the veterinary profession which resides in Canada, the oldest of the sister Dominions, and I am very proud to convey to you their good wishes for future co-operation between veterinary science in this country and across the water; and, thirdly, because I myself am that peculiar phenomenon, a native of this City who emigrated to Edinburgh, and I am not sure whether I am in the parlour or in the kitchen to-day. (Laughter.)

As some of you may know, I am a professional parasitologist. I am interested in parasites as parasites, and I am interested, like my colleagues, in the subject of immunity. It is estimated that there are about one million species of organisms known to this world, and that half of these live a more or less parasitic existence on the other half; that I think is substantially true. From the general study of the very large number of examples several very important principles seem to arise, and one of the most important of these is the fact that an animal parasite or a vegetable parasite, or a virus parasite, whichever it may be, must live in a state of harmony with the host which it normally parasitises. Otherwise it would terminate its own existence. In other words, the more pathogenic the parasite is to the animal it is attacking the more recent it is. The longer it has lived in that host the less pathogenic it is. I am speaking, of course, of natural varieties, not those that have been created in the laboratory.

That raises the question we next come to, which is the origin of the pathogenic parasites with which we are so well acquainted in these days, and that in turn raises the story of the so-called inapparent viruses. Perhaps the most striking example of these was that which Professor Cowdrey worked at some years ago. A laboratory monkey which did not appear to be suffering from anything unusual bit an assistant, and the man died from the bite. Investigation showed that the monkey was harbouring a virus which was causing no particular symptoms and which was producing no apparent disease. That introduced the complicating factor of wild animals as producers of disease in man and domestic animals and that, it seems to me, is of considerable importance. A number of interesting examples have come to light in recent years. Perhaps the most interesting of the lot is that with which Professor Hindle is most intimately associated, the story of yellow fever: for many generations called yellow Jack. Some of you may have seen the "movie." If you have not, you should. It is reasonably accurate, for an American "movie." (Laughter.) For many generations yellow Jack has been one of the greatest scourges of mankind in the tropics. It was believed until comparatively recently to be exclusively a human disease. We now know it is almost exclusively an animal disease. It is a disease of the deep jungle of the Amazon and of the hinterland of Western Africa, where it is present in wild animals, probably monkeys. It is carried from the wild host to man—and by man I mean man: not man and woman—in the jungle by an entirely different species of mosquito from that which carries it in the towns, a "wild" mosquito which does not live near the settlements. When a man thus infected comes into a city and is bitten by the "domestic" mosquito—called *Aëdes aegyptica*—and if the City consists of non-immune people the whole population may be wiped out in the course of a few weeks.

Another example with which I have had some contact myself is that of bat rabies: I have been most interested in the bat, which lives only in South America but comes as far north as Central America. It rejoices in the name of *Desmodus rufus*. It can feed on both animals and man, but prefers animals. It lives only on blood. It is the story of Dracula practically brought to life. The most interesting thing about it is that in South America generally—certainly in the Spanish Main—many of these bats are affected with rabies, and have been affected with rabies ever since Columbus went over and discovered the place. Searching through old documents I found that a few years after the first landings had been made, records occur of bats which had been affected with rabies and which had bitten sailors and the sailors had died. It is only within comparatively recent years that it has been found that that is the same rabies as we find in our dogs, and much of our modern knowledge of this condition is due to our colleague, Captain H. Metivier in Trinidad. The interesting thing about bat rabies is that the blood-sucking bats and other bats which they bite go mad. The bat is a nocturnal animal, feeding during the night and sleeping during the day, yet you can see these bats fighting with each other in broad daylight at the top of the palm trees and dropping to the ground where they can be picked up by hand. The peculiar thing is that when these bats bite other animals or man there is no sign of madness and only dumb rabies develops. It is only when other bats have been bitten that the furious rabies develops. It is equally curious that the ordinary anti-rabies vaccine, such as is generally prepared for dog use in America, is equally effective in protecting the population and the cattle from

this disease in the tropics. In the island of Trinidad it was quite successful. Dog rabies is practically absent from that part of the world, and it is most exceptional to find that a dog becomes infected from these bats. They have, of course, a somewhat parallel problem in South Africa, where the yellow mongoose is the main carrier of rabies, and where rabies, as in Trinidad and the Spanish Main, is almost entirely absent in dogs.

I am afraid I have not time to go on and discuss all these theoretical concepts which interest me. After all, you are more interested in practical politics than in tales from the tropics, but like Professor Hindle I believe there will be tremendous development of researches in virus work within the next few years. I believe that much of that research must take into account the presence of these viruses in wild animals. Foot-and-mouth disease has already involved such a wild animal and I believe others must follow. This postulates a greater development of the subject which we have now come to know as Comparative Medicine. That is one of the first-fruits of the co-operation between veterinary and human medicine that Major Dunkin mentioned a few minutes ago. Scientists and biologists, however, must also be called into consultation. The term "Comparative Medicine" originated between Sir William Osler, Professor of Medicine in McGill University and Mr. M'Eachran, M.R.C.V.S., a graduate of the "Dick" College, and a native of Campbeltown, who started what was then the most advanced veterinary college in America. They used the term long before it was used in this country.

It is in Great Britain, however, that its greatest development has occurred, and in these circumstances, its origin in Canada and its development in Great Britain, I see great possibilities for a better and closer co-operation between the scientists of both countries. (Loud applause.)

The Reply

There being no general discussion the Chairman called upon Professor Hindle to reply.

Professor Hindle expressed his gratitude to those who had taken part in the discussion for the very kind way in which they had referred to his attempt to "set the ball rolling." The discussion called for little in the way of reply, and the only points to which he wished to refer were those raised by Major Dunkin.

Major Dunkin had called attention to the differences between a virus which was merely attenuated by passage in culture or by passage through another species of host, and a virus which was definitely inactivated by chemical or physical means, but as Major Dunkin himself had mentioned, it was extremely difficult to draw the line between the living and the dead. At present one could not say with any certainty when a virus was dead because the only crucial test was its pathogenicity. He thought it possible that electrical tests might succeed in showing differences between attenuated and inactivated virus, but these were not yet perfected, and at present they had to be content with ascertaining whether or not any particular virus produced any obvious symptoms of infection apart from immunity. It had been argued that all vaccines produced by inactivation with chemical or physical agents contained live virus, but in his opinion this view could no longer be upheld.

The other point to which Major Dunkin had referred was the question of residual virus. Whilst he (Dr. Hindle) agreed that it was a very plausible hypothesis he must say that he could not accept the view that all cases of persistent immunity were due to residual virus. In the case of yellow fever he went into this point in great detail. He had endeavoured to detect the presence of residual virus in recovered monkeys and failed completely. As Major Dunkin had mentioned, no success had been obtained in the case of dog distemper and the number of viruses which had been shown to present this phenomenon was comparatively small, herpes being one of the most familiar examples. But it was a far cry just because it was good theory, to assume that persistent virus was present in all hosts showing a persistent immunity. He thought it was better to imagine that in such cases the production of immune bodies was something in the nature of a chain phenomenon. Only thus could they explain the immunity produced in such cases as that of dog distemper, when the inoculation of very few units of virus inactivated by exposure to light, after mixing with dilute methylene blue, resulted in the production of a large amount of immune substances in the blood. He would like to say, in conclusion, how much he had enjoyed being present that morning and hearing the discussion.

UNIVERSITY OF LIVERPOOL EXAMINATION LIST

The September, 1938, Examination List of the University of Liverpool contains the names of Mary McCreenor, P. F. Perry, W. O. E. Saunders and E. V. Thomas as having passed Part II (Physics) of the First Examination for the Degree of B.V.Sc. from the School of Veterinary Science, and of D. M. G. Garratt, P. F. Perry and E. V. Thomas as having passed in Part III (Biology).

Post-Congress Meeting of Council

A meeting of Council, N.V.M.A., was held in the Concert Hall of the Empire Exhibition, Glasgow, on Friday, September 9th, 1938, immediately following the closing meeting of Congress.

The newly-elected President (Major Brennan DeVine) occupied the Chair and there were also present: Captain J. R. Barker, Messrs. A. D. J. Brennan and D. Brown, Professor T. G. Browne, Mr. H. E. Bywater (Hon. Treasurer), Captain Donald Campbell, Mr. T. A. R. Chipperfield, Professor J. F. Craig, Mr. P. F. Dolan, Lieut.-Colonel H. Greenfield, Captain O. V. Gunning, Mr. H. G. Lamont, Major J. G. McGregor, Mr. J. W. McIntosh, Captain W. R. McKinna, Professor W. M. Mitchell, Dr. R. F. Montgomerie, Messrs. W. Nairn and A. F. O'Dea, Major D. S. Rabagliati, Messrs. Alex. Robertson, P. L. Shanks and Alex. Thomson, Captain A. H. Watson, Dr. A. W. Whitehouse, Mr. T. Wilkinson and Dr. W. R. Wooldridge (Hon. Secretary), together with Mr. C. O. Langley (Solicitor) and Mr. F. Knight (Secretary).

The SECRETARY, having read the notice convening the meeting, explained that its purpose was to make arrangements for the nomination of members to serve on standing committees for the ensuing year; also to deal with any matters that might require immediate attention.

Last year, proceeded the Secretary, the Selection Committee consisted of the same members as had served the previous year, with the substitution of Major A. B. Mattinson for Mr. E. P. Edwards, who retired in consequence of his inability to attend the meetings.

The President having called for a resolution on this matter, Dr. WOOLDRIDGE said that he would like to see a variation in this procedure, which they had followed for the last three years, under which they had a number of gentlemen appointed to make that selection. His own view was that they should not nominate individuals who had to decide the constitution of the important committees of that Council. Since they first started that practice, Mr. Barker, when he was President, had introduced an extension of the functions of the Finance Committee, saying that that Committee should act as an executive committee. The personnel of that Committee changed as the personnel of those active in the Association changed, and he (Dr. Wooldridge) himself thought that the Council would gain much if they charged that Committee with the duty of the selection of the Committees of the Council, *i.e.*, that the retiring Finance and General Purposes Committee, which embraced the Chairmen of other standing Committees, be constituted the selection committee.

Mr. CAMPBELL observed that he thought that that was a considerable departure from previous procedure and he would certainly prefer to have some little time to think it over. He was not objecting to Dr. Wooldridge's proposal by any means; he was, however, suggesting that it would be better if it were brought forward as a resolution of which notice had been given.

Mr. NAIRN, having supported Dr. Wooldridge's proposal and the proposer having expressed his willingness that it should now read, "That for the ensuing year the Selection Committee comprise the members of the retiring Finance and General Purposes Committee," Mr. CAMPBELL withdrew his opposition and the resolution was carried unanimously.

MATTERS REQUIRING IMMEDIATE ATTENTION

The PRESIDENT informed the Council that there was nothing under this heading arising out of the proceedings of Congress. Were there, he enquired, any other urgent matters that the members of Council wished to raise?

Mr. LAMONT said that he thought that the Council of the Association should consider more carefully the place where the Congresses of the Association should be held; at present, the matter was decided in a very haphazard fashion.

Colonel GREENFIELD observed that he would like to voice the views of a certain number of members of the profession, that it would be a great advantage if the programme of future conferences were extended beyond the forthcoming year. That was done in connection with other Congresses and he thought that such a procedure would probably serve the interests that Mr. Lamont had brought forward.

Professor CRAIG enquired if it was the intention to approach bodies to ask the Association to invite them. He thought that if they got spontaneous invitations such as they had relied upon in the past, a civic welcome, for instance, would be assured, but possibly not otherwise.

Major MCGREGOR expressed the view that it should be remitted to two or three to explore the situation, if need be visit such towns as they had in mind and come to the Congress with something fixed. He did think they should encourage local divisions or areas or branches to signify a desire to have the Congress held within their area. He, therefore, suggested that a small committee should be formed for this purpose, to get in touch with a division or branch within the area suggested and to come forward with some data for the consideration of the Congress. He agreed with Colonel Greenfield that the Association should have a programme drawn up for some years ahead; in other words, that they should have a rota.

He only asked that the Council should give the matter some consideration.

The Hon. Secretary said that he was much in sympathy with the views expressed by previous speakers. He thought the best thing would be to remit the matter to the Finance and General Purposes Committee in order that it might be considered by the Council at its April meeting, *i.e.*, in good time before the next Congress. He moved accordingly.

Major Rabagliati seconded the motion.

Mr. Campbell supported, pointing out that the final decision must always rest with the annual general meeting. Mr. Campbell added that there would be little doubt that if the reasons for the decision arrived at by the Committee in this regard were made clear to the annual general meeting, the recommendation would be supported.

The motion was carried unanimously.

Colonel Greenfield gave notice that at the next meeting of Council he would move "That the National Veterinary Medical Association should add to its list of standing committees an Ethical Committee."

There being no other business, the meeting terminated with a vote of thanks to the President for his conduct in the Chair.

Captain R. Simpson: Professor W. Mitchell

LADIES' VETERINARY BENEVOLENT GUILD

ANNUAL GENERAL MEETING AT GLASGOW

The Seventh Annual Meeting of the Ladies' Veterinary Benevolent Guild was held at the Concert Hall, Empire Exhibition, Glasgow, on Tuesday, September 6th, 1938, at 12 noon. There were 33 ladies present, and Mrs. J. B. Buxton, President, occupied the Chair.

The minutes of the previous annual meeting, having been published, were taken as read and signed as correct.

Letters of apology for absence were received from Mrs. Male, Mrs. G. H. Wooldridge, Mrs. H. King, Mrs. Nairn, Mrs. Rider, Mrs. Watt and Mrs. P. J. Simpson.

Secretary's Report

The Secretary, Mrs. Nickinson, submitted the following report:—

"This year has been very successful financially, but we have added only three new members, and against this we have to remove 14 who are in arrears with their subscriptions; thus our total membership now numbers 318. It is rather disappointing that since 1936 we show a decrease of 23 members. Surely we can do better than this. If every member would make it her duty to enrol *one* new member, think what this would mean to the Victoria Veterinary Benevolent Fund, and to those poor souls who need our help. Do please try and help to increase our membership again.

"During the year 1937-38 we collected £270 18s. 3d. out of which we have sent to the Benevolent Fund, £203 10s. 6d., leaving a balance of £67 7s. 9d. in the bank. It will interest you to know how the money was collected. £68 14s. 3d. was made at Bournemouth from the dance and golf competition, etc., held there. From the dance held in London, £46 10s. 6d., and Mrs. Wragg has again done very well by collecting £15, and Mrs. Simpson, of Maidenhead, £12 19s. 6d. Mrs. McGregor and her helpers have collected £15 16s. 6d., and the balance is made up of subscriptions, etc. I am sure you will agree that Scotland has done excellent work. All these ladies deserve a special vote of thanks for their help, for you all know how very hard they work to collect this money.

"We have done extremely well this year, but the Veterinary Benevolent Fund needs all the help we can give. As a member of the Council I know how many calls they have on the Fund, and I am sure you will be pleased to hear that the help we have been able to give has saved the Fund from an overdraft this year. I am going to ask you, therefore, to help us in every way you can, and I have

brought a collecting box along; any amount we can collect will be greatly appreciated."

The President: You will agree, I am sure, that the financial aspect of our Secretary's report is very satisfactory in that it marks a steady progress. It is, on the other hand, depressing in so far as our membership is concerned. It has appeared to me during my year of office that the real work of furthering the purposes of the Guild has been carried out by a relatively small number of enthusiastic workers. If only we could interest more ladies in our work, and so increase our membership and the active interest of our members, we could, I am confident, greatly increase the usefulness of the Guild. (Applause.)

The Secretary's report was then put to the meeting and adopted. The Hon. Secretary reported that the amount collected in the collecting box was £3, and that Mrs. Donald Campbell had handed her a cheque for £22 12s. 0d., being the amount of a collection she had made amongst her friends. (Loud applause.)

Election of Officers

President.—The President said that it was her privilege to suggest to them the name of a member as President for the coming year, and she had very great pleasure in proposing Mrs. G. H. Wooldridge. (Applause.) Mrs. Mrs. Wooldridge had been one of their most keen and generous supporters since the Guild was founded, and she was sure that their choice would prove to be a happy one.

The proposition having been seconded by Mrs. Wragg, the motion was carried with acclamation.

Vice-Presidents.—On the proposition of Mrs. Barker, seconded by Mrs. Craig, it was unanimously resolved that the following be elected Vice-Presidents of the Guild for the ensuing year: Mrs. Buxton, Mrs. Wragg, Mrs. Nairn, Mrs. Jackson Young, Mrs. Dolan and Mrs. King.

Hon. Secretary.—In this connection the President said that as they knew, last year Mrs. Nickinson expressed a desire to be relieved of her office but very generously consented to remain for one more year. She understood that Mrs. Nickinson had now decided that she was unable to carry on the work, and it was therefore necessary to elect another Hon. Secretary. Fortunately they had been able to persuade Miss Wragg to undertake the duties of Hon. Secretary.

Mrs. Nickinson: "I should like to have the pleasure of proposing the election of Miss Wragg, as Hon. Secretary. I am sure she is very competent, and will carry out the work very efficiently."

Mrs. Jackson Young seconded, and the proposition was unanimously carried.

Hon. Auditor.—The President said that Captain Wragg had kindly acted as Hon. Auditor for the past two years; they were very grateful to him for his help in this connection, and also for his support of the Guild. She was sure they would be unanimous in their wish for his re-election and also that they should express to him their thanks for all his help. The motion was carried with acclamation.

Representative on Council of V.V.B.F.—It was resolved that Mrs. G. H. Wooldridge be appointed representative of the Guild on the Council of the Victoria Veterinary Benevolent Fund.

Presentation to Mrs Nickinson

The President: "Our first duty is to convey a cordial vote of thanks to Mrs. Nickinson for her invaluable work on behalf of the Guild. She has watched us grow from strength to strength and has played an inestimable part in the development of the Ladies' Guild. We cannot hope to thank her adequately for all that she has done. We can only trust that she has found some measure of reward in observing how her work has helped to alleviate the anxiety and misery of some of our less fortunate brothers and sisters. Presidents come and go, but the real responsibility for our success or failure rests upon the shoulders of the Secretary. Mrs. Nickinson has carried through the many duties of the office with conspicuous success. No one can appreciate her great work more than the past Presidents, and on their behalf I am to ask you to accept this little memento, Mrs. Nickinson, and not to judge it by its intrinsic value, but by the affection and gratitude which it is intended to convey.

[Mrs. Buxton then handed to Mrs. Nickinson a fitted travelling case in grey morocco, with blue and chromium fittings.]

Mrs. Nickinson: "I am sorry I cannot find words to say what I feel, but I do assure you that I am most grateful for this very delightful gift. I feel I have done nothing to deserve the very kind words which have been said about me, but I do appreciate your great kindness. I have often longed for a bag like this. Thank you very much indeed."

Before the meeting closed, the President invited Dr. Bullock, the Secretary of the Victoria Veterinary Benevolent Fund, to speak, and he very briefly thanked the Ladies' Guild, on behalf of the Council of the Fund, for the great financial help which the Guild provided. The Ladies' Guild was in fact the largest contributor to the Fund, and without their help the amount of relief granted by the Council would have to be reduced and at least four widows would suffer the loss of their grant. He expressed the hope that the Ladies' Guild would continue to prosper.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Oct. 13th.—Meeting of the Derbyshire Division, N.V.M.A., as Sutton Bonington, 2.30 p.m.

Oct. 13th.—Meeting of the (V.V.B.F.) Ladies' Guild, at 10, Red Lion Square, W.C.1., 3 p.m.

Oct. 17th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 4 p.m.

Oct. 21st.—Meeting of the Mid-West Division, N.V.M.A., at Bath, 2.30 p.m.

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PERSONAL

The "Father of the Profession."—The profession will extend warmest congratulations to Mr. Haydon Leggett, M.R.C.V.S., who recently has celebrated his ninety-sixth birthday. Mr. Leggett, who has lived in retirement at Stockport for the past 19 years, spent much of life in practice at Luton, Beds., and earlier in London, where his clients included King Edward VII, Baron Rothschild and Ellen Terry.

In the course of an appreciative reference to this fine veteran member of our profession, the *Stockport Advertiser* observes: "On one occasion Mr. Leggett was called to the Royal household to attend one of the King's dogs, and King Edward was so deeply concerned that he shared Mr. Leggett's all-night vigil with the dog.

"Mr. Leggett is well, except that his legs are giving him some trouble, and he now spends a good deal of his time in bed. He does, however, get up occasionally, and can still enjoy a hearty meal."

The good wishes of all our readers will go with Mr. Leggett as he proceeds, we trust surely and safely, towards the attainment of the centenary of his birth.

Further French Honour for Mr. H. H. Truman.—The French Government have elevated Mr. H. H. Truman, J.P., M.R.C.V.S., of March, Cambs., from the rank of Chevalier Mérite Agricole, to that of officer of the Order. He was awarded the Croix de Chevalier Mérite Agricole for services rendered to French agriculture in 1925.

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R.C.V.S. OBITUARY

Marshall, John, 37, North Street, Horncastle, Lincs. Graduated Glasgow, December 18th, 1897. Died September 21st, 1938; aged 67 years.

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LEGAL NOTES

The "Peculiar Gait" Question Again.—When James Purcell, Old Kent Road, Peckham, carman, was charged with cruelty to a horse in Penge Road, South Norwood, on August 11th, by working it when lame, and Robert Hayward, of Dorking, was charged with permitting the offence, a constable said that he observed the animal, attached to a pair-horse van, hobbling, and on examination he came to the conclusion that it was lame. Evidence was given by a veterinary surgeon that the horse was suffering from laminitis; but on behalf of defendants another veterinary surgeon asserted that it was the animal's peculiar gait that gave the impression of lameness. It had the gait of a camel, moving both legs on the same side together. The Chairman said that there might have been some temporary lameness, but the case was not proved and would be dismissed. The animal had a peculiar gait, but was in excellent physical condition generally.

Commenting on the above case, a writer in a Croydon paper observes: "The Bench decided to go out and view this remarkable animal, and fortunately the Chairman was Mr. W. Goss Grant, a magistrate with considerable experience in horse-flesh. The horse was walked down Fell Road, a performance which it carried out as naturally as any other horse. But, when it came to trotting back, the effect was most peculiar, for it moved both legs on the same side at the same time. The Court decided that this peculiar gait had misled the prosecution into thinking the animal lame, and the case was dismissed. There came into my mind the recollection of something about this, heard years ago, and, turning out an old notebook, I found a record of a conversation with an ex-officer of the Indian police who told me that this gait of the horse is called 'kuddum.' He described it as an artificially induced step to be seen in some parts of Africa and Asia—but sometimes inborn."

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Rabbit Coursing: R.S.P.C.A. Prosecution.—A raid by a squad of 50 police officers and R.S.P.C.A. officers on a rabbit coursing meeting on a Sunday morning was described at Bristol on Thursday of last week, when 15 men were summoned for various offences of causing cruelty to wild rabbits. It was stated that some of the police officers concealed themselves outside the field while other officers in plain clothes mingled with the crowd.

Mr. Gordon Jones, prosecuting on behalf of the R.S.P.C.A., said that men arrived bringing sacks containing wild rabbits, there being as many as 16 rabbits in one sack. "Some of these rabbits were taken out of the sacks," said Mr. Jones, "and dangled before the noses of the greyhounds. This terrified the rabbits, and they were so exhausted that when set down upon the ground they were so paralysed with fright that they did not know which way to turn. The whole thing was most pathetic."

Mr. Jones said that rabbit coursing in itself was legal. At its best it was a sorry sport, but at its worst it was nothing else than a disgusting exhibition. In Bristol it had become a public scandal, these rabbits being coursed in an exhausted condition.

Inspector Frederick Steele, chief inspector of the R.S.P.C.A., said that when the rabbits were let out of the sack they were transfixed and lifeless. They were terrified and had no sense of direction.

Summonses against two of the men were dismissed, four were sent to prison, and the

remainder were fined sums ranging from 10s. to 40s.

Mr. J. P. Brazil, the Chairman, said that it was a case of the "most fearful cruelty" it was possible to conceive. It was a sport they were determined to stop if possible, as it was a disgrace to the city.

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"Mares-in-Foal" Frauds.—At the Central Criminal Court recently, Sidney John Lilley, a 50-year-old contractor, was sentenced to twelve months' imprisonment for frauds on farmers. He was alleged to have advertised mares-in-foal which were found by the purchasers to be unsound, aged and not in foal.

Lilley pleaded not guilty to six charges in which two sums of £34 13s. 0d., three of £68 5s. 0d. and one of £75 were involved.

Mr. Scott Cairns, for the prosecution, who was instructed by the National Farmers' Union, said that defendant was the sole director and principal share-holder of a company called Contractors (London), Ltd. From time to time there appeared in the trade and local Press advertisements in the name of this company, offering mares for sale. The farmers concerned replied to the advertisement and received a letter and warranty from Lilley, guaranteeing the mares to be in good condition and seven years of age. When the mares reached their purchasers, they were found to be unsound, aged, and not in foal. "The basis of these charges," said Mr. Scott Cairns, "is that in every case one or more of the representations that were made were false. In not one single case have the mares been in foal."

Lilley said he bought the mares believing them to be in foal, seven years of age, and in sound condition. In all he purchased about 200 mares. He despatched the mares himself and was satisfied that they were sound.

Lilley was found guilty on all counts and asked that 35 other cases should be taken into consideration. It was stated that the total amount involved was £2,250.

Mr. John Maude, defending, said that Lilley had been engaged in the business a short time and was a man of good character.

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MINISTER ON PROSPECT OF HEALTHY POULTRY STOCKS

In the course of a statement on poultry policy by Mr. W. S. Morrison, Minister of Agriculture, which was read at the poultry industry dinner in London, Mr. Morrison said that the losses which the industry had suffered from disease had been largely responsible for its decline from the peak which it reached three or four years ago. It was proposed, in addition to the steps already taken, that the Parliamentary Commission should attack the problem at its roots by assisting the industry to build up a fundamentally healthy stock. No one, of course, expected results overnight in a situation of that kind. But it was surely not too much to hope that an adequately equipped Commission, with the wholehearted support of the industry, and with the assistance promised by the Government, would be able within a reasonable time to achieve such improvement in the health and quality of our poultry stocks as would put the industry on a footing of lasting prosperity.

INTERNATIONAL VETERINARY CONGRESS

The General Secretary of the Thirteenth International Veterinary Congress is still receiving orders for the general report of the Congress from governments and scientific institutes, etc., which were not represented at the Congress. This general report, containing all reports and discussions, will be printed only in numbers sufficient to cover the requirements of members of the Congress and orders received in advance, and will not be thereafter available through booksellers. Consequently non-member readers of this journal who have not yet made their requirements known, are requested to send in their orders direct to: E. Graub, General Secretary, Seilerstrasse 23a, Berne, Switzerland.

The general report will be sent at the price of S.Frs. 30.-, post free.

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AVIAN TUBERCULOSIS IN SWINE

"All three strains of *Mycobacterium tuberculosis*—bovine, avian, and human—have been found in the pig," states the *Lancet* (September 10th), and continues: "Although the bovine strain is probably commonest, the avian is not rare. Generally speaking, this strain produces a localised infection, but Dr. A. B. Crawford of the United States department of agriculture has lately recorded a generalised type of the disease in America (*Amer. Rev. Tuberc*, June, 1938, p. 579). The instances reported were obtained from government-inspected abattoirs in five American States (South Dakota, Minnesota, Wisconsin, Ohio, and Iowa) where tuberculosis in poultry was known to be widespread, and where in all but one instance the morbidity of tuberculosis in cattle was believed to be less than 0·5 per cent. Typing tests of 36 specimens showed that 21 were avian strains and 15 bovine (Feldman had previously reported 24 instances of avian infection in 30 specimens from Minnesota). A comparable series of rabbits intravenously infected with suspensions from Crawford's strains showed that, for the rabbit, the bovine were decidedly more virulent than the avian strains. Sensitisation tests with avian and mammalian tuberculins were also used to differentiate the two strains in guinea-pigs and rabbits. These tests separated the 36 specimens into two groups, 21 causing in guinea-pigs a sensitisation specific to avian tuberculin and 15 to mammalian tuberculin. These figures were in agreement with the animal inoculation tests and the culture typing.

"Discussing the possibility of the infection of man with the avian strain, Crawford reaffirms what is now well established—that this strain very seldom infects man. Although avian tubercle bacilli have been found in eggs and in cattle (including milk) as well as in swine, the likelihood of transference to man is remote, except possibly for workers on poultry-farms. There are no recorded instances in this country, but in 1931 A. Branch was able to collect 14 cases—among which renal tuberculosis was the commonest form—and since then a few more have been added. The whole subject was reviewed by S. R. Gloyne in the *Bulletin of Hygiene*, 1933 (vol. 8, p. 39)."

UNDULANT FEVER

Reviewing the subject of undulant fever, in the *Lancet* (August 6th), Sir Weldon Dalrymple-Champneys, Medical Officer of the Ministry of Health, writes as follows:—

"In spite of the increasing attention which has been given in recent years to this disease in the medical Press there is good reason to believe that many practitioners still consider the possibility of its presence in any particular case of continued fever only when all other diagnoses have been excluded. Moreover, undulant fever is still often spoken of as a disease so rare and so trivial as to merit little attention from the medical profession. No apology is therefore necessary for drawing attention to the evidence which has been collected in the last ten years by myself (Dalrymple-Champneys, 1929 and 1931 to 1935) and others, regarding the epidemiology and prevention of brucella infections in man in this country.

The Size of the Problem

"Though the mortality from *Br. abortus* infection in this and other countries is low—there have only been 13 deaths in my series of 431 English and Welsh cases—yet undulant fever is usually a very trying disease for the patient owing to its long duration (averaging 12·2 weeks in my series); the frequency with which the patient is mocked by one or, more usually, several intermissions followed by recurrence of the fever; the intense depression which often accompanies the disease and which sometimes gives rise to suicidal tendencies; and the lack of any treatment which can truly be called specific.

"Owing to the fact that undulant fever is at present compulsorily notifiable only at Norwich and that contagious abortion of cattle is not compulsorily notifiable anywhere in this country at the present time, the true incidence of these diseases is quite unknown. There can be no question that the series of cases which I have collected in the last ten years represents only a fraction of those which have occurred, and it seems increasingly probable that Wilson's estimate (1932) of 400 to 500 cases per annum is not an exaggeration of the true position.

"As regards the incidence of contagious abortion in cattle, veterinary surgeons with experience of this disease are agreed that probably not less than half the herds in this country at any given moment are infected with *Br. abortus*, and that this disease is the most serious cause of loss to the dairy industry—even more serious than bovine tuberculosis.

Diagnosis

"A short account of the diagnosis of this disease was given by me in this journal in 1935 and it would be inappropriate to consider it again here in any detail, but it may be useful to call attention to a few important points.

"The clinical diagnosis of undulant fever is often extremely difficult, but the disease should always be suspected in cases of continued fever of unknown origin, especially if the fever is of the undulant type or the prostration is much less than would be expected from the height and duration of the fever. It should be noted, however, that cases in which the fever lasts a week or less are not uncommon, and in such cases the agglutination reaction often does not become positive until two or three weeks after the termination of the fever. The possibility of undulant fever should also be borne in mind in cases of chronic ill health and neurasthenia, of which Dr. Alice Evans and other American workers believe it to be a not uncommon cause. The commonest symptoms are (in order of frequency in my series) sweating (which is often very heavy and may be sour-smelling), malaise and fatigue, headache, anorexia, pain in the body or limbs (other than abdominal or joint pain), constipation, rigors, and enlargement of the spleen. The diseases for which undulant fever was most often mistaken in my series were (in order of frequency) typhoid fever, influenza, paratyphoid fever, pulmonary tuberculosis, malaria, and cholecystitis. In one case eight mis-diagnoses were made before undulant fever was finally suspected, thus illustrating not only the difficulty of diagnosis on purely clinical grounds but, also, the way in which the disease is still neglected in this country in spite of the increasing publicity which has been given to it in recent years and the ease with which it can usually be diagnosed in the laboratory.

"As regards the age- and sex-incidence, undulant fever in this country is twice as common in males as in females, 283 of the patients in my series having been males and only 144 females (the sex being unknown in four cases). This sex-incidence, which is approximately the same for most countries, is at present unexplained and cannot be due, as will be seen presently, to occupational causes. As regards age of incidence, undulant fever is uncommon in childhood, though 21 of my cases were under ten years of age and 60 were under 20 years of age. On the other hand 248 out of a total of 417 cases of which the age is known were between 30 and 60 years old.

"I have already mentioned the ease with which the disease may usually be diagnosed in the laboratory, the principal methods being the blood agglutination reaction, blood culture, and urine culture. These tests cannot be discussed here in detail, but it is important to note the following points:—

(1) A positive blood agglutination test, often to a very high titre, is given in the great majority of cases.

(2) The blood agglutination test may not become positive for three weeks from the onset of the illness so that a negative test in the early stages does not justify a negative diagnosis but should be repeated later.

(3) "Pro-zones" are very common so that agglutination should be carried out over a large range of dilutions.

(4) Blood culture is attempted far too seldom but, if properly carried out, it is often positive, is conclusive evidence of infection, and enables an autogenous vaccine to be prepared which may be of great value if the case is a prolonged one.

Finally, the intradermal reaction with Brucellin (which is similar to the Mantoux tuberculin test) is a useful auxiliary diagnostic test.

Avenues of Infection

"Before considering infection by animals and their excreta a word must be said about 'inter-human infection.' It is remarkable that although probably at least a million cases of undulant fever have received medical and nursing attention since its recognition as a separate disease by Marston in 1861, and though the causative organism can often be cultured from the patient's urine and occasionally from other excreta and discharges, yet to my knowledge no case of infection proved to have been acquired from a

patient by a doctor, nurse, husband, wife, or child has ever been reported. (Infections from laboratory cultures and *post-mortem* examinations are, of course, very common.)

"Although brucella infection of goats, sheep, and swine represents an important source of human infection in other countries there is so far no conclusive evidence that any other animal species than the bovine, or any other type of organism than *Br. abortus*, need be taken into account in considering undulant fever in Great Britain.

"Apart from laboratory infection, therefore, man here is always infected by cattle through one of the following avenues:—

Direct Contact

(*a*) By the handling of infected animals (farmers, farm workers, and veterinary surgeons).

(*b*) By the handling of infected carcases (butchers and slaughtermen).

(*c*) By the handling of infected excreta, litter, etc. (farmers and others).

Consumption of Milk and Milk Products

"Infection by direct contact appears to be much more frequent abroad (U.S.A., Denmark, etc.) than in this country. In only 32 of 321 cases in my series for which the relative information is available did the occupation of the patient or the history suggest a possibility of infection by this avenue, and in 22 of these cases the patient had also drunk "raw milk"—*i.e.*, not boiled or pasteurized.

"On the other hand 288 of the patients had apparently had no contact with cattle but were raw milk (or raw cream) drinkers and in 73 of these cases there was evidence (more or less conclusive) of *Br. abortus* infection in the cows supplying them with milk. London, where well over 90 per cent. of the milk supply is pasteurized, provided only 25 of these 321 cases and in 16 of these cases raw milk had been consumed, the evidence being absent or insufficient in the remaining nine cases. The overwhelming importance of milk as a source of brucella infection in this country is therefore evident.

"In this connection a word must be said about milk from tuberculin-tested herds. I have been astonished by the frequency with which 'tuberculin-tested milk' is assumed to be invariably 'safe' milk, even by medical men. Such milk, produced under licence, should be of course up to a certain standard of cleanliness and is unlikely to contain tubercle bacilli, but although the owners of these valuable herds will naturally be anxious to keep them free from contagious abortion, effective measures to that end are not taken by all such owners and actually in 20 cases in my series the only milk consumed by the patients had been from tuberculin-tested herds and in none of these cases was there any evidence pointing to the possibility of infection by direct contact with cattle.

"In spite of the evidence, not only in this country but abroad, that *Br. abortus* infected milk is the most important source of human infection with this organism it has been argued that this contention cannot be true because although such a large proportion of the raw milk-supply contains the causative organism so few cases of undulant fever occur. Until lately no satisfactory explanation of this discrepancy had been advanced, but the recent demonstration by Garrod (1937) that *Br. abortus* is more easily killed by gastric juice or dilute hydrochloric acid than any of the other common intestinal pathogens suggests a possible solution not only of this problem but also of the great frequency with which a period of ill health, often lasting weeks or even months, precedes the onset of definite fever in this disease, as during this period a hypo- or achlorhydria may develop and lay the patient open to infection by ingested *Br. abortus*.

Measures of Control

"The control of contagious abortion in cattle presents problems of the greatest difficulty which have been under investigation by a special committee of the Agricultural Research Council for the last six years. This aspect of the question cannot be discussed here but it may be stated that the three principal methods so far investigated are:—

(1) The slaughter of all infected animals; this is not a practicable measure.

(2) The vaccination of cattle with killed or modified live vaccines.

(3) The segregation of animals on the basis of blood agglutination tests.

"Though there is every hope of evolving a method of control which will in time reduce very considerably the incidence of this cattle scourge, its complete eradication must probably be regarded as a remote prospect.

"In contrast to the animal disease undulant fever, except perhaps as a rare occupational disease, could be eradicated within a very short time, as was actually done for the armed forces of the Crown stationed in Malta, only substituting for an order forbidding the consumption of unboiled goat's milk the compulsory pasteurization of all cow's milk sold in this country. The problem of control will now be considered in more detail.

Occupational

The veterinary surgeon, farmer, and butcher should take special precautions when handling possibly infected animals, their excreta and discharges, to protect themselves from infection through the skin. Such precautions naturally involve the use of rubber gloves, the cleansing and disinfection of the hands and arms, and the disinfection or destruction of infected discharges and articles. In addition the possibility of producing immunity in those persons particularly exposed to risk has been explored, especially in France by Dubois and Sollier (1930), who seem to have obtained a limited success. This method deserves further investigation.

Milk Consumption

"It is no exaggeration to say that apart from those persons who by reason of their occupations are exposed to special risks *no one need have undulant fever.*

"Pasteurization (as defined in the Milk (Special Designations) Order, 1936) destroys the *Br. abortus* with certainty—in fact a good deal more easily than the tubercle bacillus—so that the consumer of efficiently pasteurized milk is safe and, as has already been pointed out, universal (efficient) pasteurization would practically stamp out the disease. And yet there are records of cases in which the patient, *after* the diagnosis of undulant fever had been made, was given raw milk in large quantities by the medical attendant! An experienced practitioner has even been known to continue to drink the infected milk which had given one of his

children undulant fever, with the result that about a year later he contracted the disease himself.

"At the present time, unfortunately, a supply of pasteurized milk is not always available, especially in rural districts, but raw milk can easily be made safe in the home as it is only necessary to raise milk to the boiling-point or even to about 160° F. and then immediately to cool it in order to destroy the *Br. abortus*. The adult is, of course, at liberty to run the risk of contracting undulant fever if he so desires, but it will be generally agreed that no parent or person responsible for the health of children, whether in their own home or in an institution, has the right to expose such children to the risk of contracting this, or indeed any other of the many milk-borne diseases, by giving them raw milk to drink.

Conduct of Cases

"Although, as has been mentioned, no case of inter-human infection appears to have been definitely established, in view of the infectious nature of excreta and discharges from many patients it would seem advisable to regard these as potential sources of danger and to take the same precautions with regard to them as are observed in cases of enteric infections.

Administrative Aspects

"It only remains to consider what action should be taken by a local sanitary authority when a case of undulant fever, believed to be milk-borne, occurs in their district. Section 5 of the Milk and Dairies (Consolidation) Act, 1915, makes it an offence to sell, or offer or expose for sale, for human consumption or for use in the manufacture of products for human consumption, the milk of any cow suffering from certain diseases, and the Milk and Dairies Order, 1926 (Section 11), lays down that the diseases specified in the Act shall include "any infection of the udder or teats which is likely to convey disease." The Ministry of Health has expressed the opinion that the discovery of *Br. abortus* in milk is evidence of the existence of such a condition and that consequently Section 5 of the Act would apply to a cow giving such milk. It is necessary therefore to examine the mixed milk from the suspected herd and to follow this up by an examination of milk samples from individual cows. Moreover since the udder or teats of a cow suffering from contagious abortion may be only intermittently infected, though the cow may have specific agglutinins in her milk, a positive agglutination test on the milk would not constitute a proof that the udder or teats were infected with *Br. abortus*, though the culture of the specific organism from the milk would do so. A positive milk culture was obtained in only eight cases in my series, but in most cases no attempt appears to have been made to discover the organism in the milk."

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TESTIMONIALS

The following editorial article, which was recently reproduced in the *Lancet*, will no doubt serve as a useful and interesting guide to members of our own profession who have probably often felt uneasy on the question of writing testimonials and also in assessing the worth of candidates for appointment from what is written upon testimonials. It seems that the fashion of submitting open testimonials is, with good reason, now looked upon with disfavour, a far better method being for the candidate to give the names of references to whom his prospective employer can communicate confidentially.

"About five years ago Dr. Robert Hutchison was asked four times in one week to write testimonials. Some of the applicants had passed through his wards as clerks several years previously, and he had forgotten them. The sequel was a Hutchisonian protest to the *British Medical Journal*.[1] All testimonials, he said, like funeral orations, are *bunkum*: 'Well may their writers exclaim with the Prophet: "Who hath believed our report?"' Had the time not come to abolish testimonials for hospital appointments altogether and to judge candidates solely by their record and on the strength of a personal interview? In the correspondence that followed it was made abundantly clear that testimonials are dull and undifferentiated documents, distasteful to ask for, tedious to write, and destined to be ignored by those to whom they are addressed. The subject was reopened in the same correspondence columns last December, this time by surgeons complaining about the time and money wasted in the formalities of applying for appointments; one of them found the testimonial farce reminiscent of the giving of a 'character' to a retiring maid-servant.[2] The obvious suggestion was made that hospitals and electing bodies should cease to ask for testimonials but should invite confidential opinions from referees on those candidates whose general records earn them a place on a short list.

"With the maid-servants this has been the practice for a long time; a maid's reference consists of a name and a telephone number. And now at last one branch of the medical profession has followed the domestic example. The British Institute of Radiology and the Society of Radiographers have made a bargain[3] that no radiologist shall give, and no radiographer need ask for, an open testimonial. A standard certificate of radiographic employment is provided instead; it is a plain statement of experience. The radiologist is to give his opinion of the radiographer's ability and character only in the form of a confidential report to another radiologist or an electing body. Our X-ray colleagues are professionally perspicacious and we wish all success to their new arrangement. It will be interesting to observe how slowly the reform spreads to medical appointments proper.

"A voice here and there will probably defend the testimonial. In the benevolent glow of parting with a house-man who hasn't been so bad after all, the well-disposed chief will write him a better, perhaps a truer, recommendation than a year or two later when he has faded a little from memory. If access to the short list is to depend only on a bald statement of appointments held, the brilliant but little known man may remain

[1] *Brit. med. J.* 1933, **2**, 843.
[2] *Ibid.* 1937, **2**, 1200.
[3] *Brit. J. Radiol.* August, 1938, p. 505.

little known. These difficulties should not be insuperable. Others with a taste for subtleties in English style will regret the passing of a really skilful testimonial in which the bearer can see nothing but faint praise while the recipient reads damnation between the lines. But how few testimonial-writers are capable of such gems! Certainly there are not enough of them to justify the dullness, or the fullsomeness, or the obliquity of all the rest. Such documents indeed, considered critically, often reveal more about the character of the describer than of the described: the classic and extreme example is from a member of a hospital staff who began, 'Seldom have I written a testimonial with greater sincerity than I do for . . .' This observation suggests the one basis on which testimonials might reasonably be retained—namely, that they be written by the junior on the subject of his chief. When Mr. Smith finishes his house appointments and applies for a registrarship let him write three testimonials for three of his chiefs and send them in with his application. They will tell quite a lot about Mr. Smith, and they will not be thumbed over unread at the staff meeting."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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TREATMENT OF EQUINE COLIC

To the Editor of the Veterinary Record

Sir,—I beg to be allowed to comment, from my experience, at some length on the interesting, informative, well written and well discussed paper entitled, "A Few Notes on Equine Colic," read by Captain O. V. Gunning, at Peterborough, and reproduced in your issue of August 20th. The points most praiseworthy in Captain Gunning's paper are three, *viz.*: he did not try to make his hearers believe that he had, in a single instance, known what the *post-mortem* was going to reveal. That omission in my experience stamps him as an honest and true practitioner. He rightly emphasised the importance of locality, diet and occupation in determining the prevailing type of colic and consequently, to some extent, the treatment.

He gave adequate reasons for believing that there are cases of colic in which it may not be advisable to add two or more gallons of salt solution to the contents of the stomach by means of the stomach tube. But I was astonished when he went on to give particulars of his treatment by a combination of linseed oil, antispasmodics (whatever they may be), liquid aloes, with odd doses of arecoline, and regular doses of acetylcholine, and to claim from his table of recoveries that he had discovered the best way to cure colic.

Out of 136 animals treated, 21 died, that is, about 15 per cent. or one in six deaths, which surely is the maximum mortality clinicians expect in colic, whatever the treatment. Mr. MacFarlane in the discussion said he and Caulton Reeks used to get about 90 per cent. recoveries and that approximates to my own estimate in military practice and in private practice.

In the past I have sometimes been a little hard on bacteriologists when I thought they were wish-fulfilling their figures a little, but no bacteriologist would have the temerity to come before us to-day with uncontrolled results like those of Captain Gunning and ask us to accept a curative value for a biological product.

The boot is on the other foot now and as a clinician I feel disposed to apologise to the bacteriologist, in this virtual appeal to him for what one might call clinical licence in the presentation of our work.

Surely it is evident that without controls any and all of the claims for the cure of colic by medicinal means are baseless, and that for all we really know as many cases will recover without drugs as with them. After very many years spent in trying to treat colic I am as a rule only sure of two things, firstly, that here is excruciating pain which we ought to try to relieve, and secondly, that one hardly ever makes a *post-mortem* on a fatal case in which there is not revealed a cause of death that no drug could have prevented.

As regards cure, there is only one sort of colic and one means in respect of which I am satisfied that my intervention has been really helpful and which I think could be proved by controls. That is the treatment of impaction of the colon in heavy or van horses by means of the saline solution of Lang. In my London practice such cases were easily distinguished by the sub-acute pain and prolonged inaction of bowel function (up to three days without defaecation).

I can very definitely corroborate and support from intensive experience the observations of Major Hicks on the value and safety of the trocar and cannula in the treatment of flatulent colic.

Oddly enough, that experience was gained within a short distance of where this letter is being written. It was at the military veterinary hospital here before the Great War when we were constantly having to admit for treatment both horses and mules—but especially mules—with flatulent colic of a per-acute type.

The cause (we now know it) was over-feeding with sun-cured green lucerne "hay," and the patients sometimes came to hospital in batches literally blown up like footballs. What should have been the hollow of the right flank was a bulge that rose above the level of the spine in some instances and it was a matter of puncture or perish, because if not punctured the animal soon died from syncope. I cannot recall a fatal or even an adverse complication or sequel as the result of using the trocar and sometimes using it in several places.

It is of clinical interest to observe that we had our worst run of mortality in these cases when the Army Service Corps mules passed for a time into the veterinary care of a young officer who, fresh from England and the Royal Veterinary College and full of academic enthusiasm for physostigmine and the like, proceeded to try these high explosives on the flatulent mules. He soon convinced both us and himself of the falsity of his teaching and the only losers by his conversion were the Kaffirs who attended each *post-mortem* examination in crowds from the near-by location to cut

up and carry away the meat when we had concluded our post-mortems.

It is now recognised among local horsemen that sun-dried green lucerne "hay" in quantities exceeding five pounds a day is dangerous for the average equine animal. In those days this "hay" was often the only roughage issued and the standard ration of from ten to twelve pounds a day was fed in addition to ten or more pounds of maize. I have about 70 loose boxes on the racecourse here and sometimes they are full of animals getting small rations of lucerne "hay" daily but we have very little colic now. The amount fed does not exceed three pounds per horse and the rest of the roughage is oat hay or teff (a sort of meadow grass hay). One feels ashamed to have to admit that our pre-War obsession with drugs and germs blinded us to the proper study of first causes.

An omission both from the paper and the discussion that amazed me was the absence of any reference to the humanitarian aspect of this agonising malady, and the following passage in Captain Gunning's paper shocked me by its apparent disregard of this aspect of the treatment of colic: "Perhaps arecoline has had the widest popularity during the last 25 years, *as it has been suggested by its advocates that so long as there is no bowel displacement it can do no harm, and if there is a displacement it hastens death, which is an advantage.* (My italics.) Well, I have myself had severe colic three times and I pray that if ever my death has to be hastened it will not be during an attack of colic by means of arecoline or eserine or the like. If the means were at hand I would defend myself by violence against a doctor who sought thus to maltreat me.

Moreover what a confession of ineptitude is implied in that passage! I think that if there is or is going to be a fatal displacement we cannot prevent it by linseed oil, turpentine, aloes, acetylcholine, arecoline or by any known drug-means whatsoever; also that, conversely, if there is no displacement or rupture the animal will recover whether we give it drugs or not.

The one thing that we can do, and do effectually, is to take rational steps to lessen the pain either by means of the intravenous injection of solution of chloral hydrate, or by the subcutaneous injection of adequate doses of atropine. The former method is often used on this continent and observers claim that it is effective. Mr. Peck, government veterinary officer of Somaliland, has given evidence on the point and I can testify from my experience to the analgesic value of atropine in some cases. In spite of my objections it may be that in the future acetylcholine will be proved to be a better means than any other for treating colic, and even better than leaving the animal alone. But let us wait and have the proof: let us infuse a little science into our practice as well as into our biological research; let us earnestly try to contract the gulf between research and practice that is not fixed but actually growing at the present time. And, above all, let us be humane and give to a good horse in the throes of what is the greatest agony any animal or man commonly suffers something of the same consideration we should demand for ourselves in similar circumstances.

There is no shred of proof of the curative value of arecoline in the treatment of colic, but many have testified to its dangers and we all know it can increase the pain. There can be only one sane and fair judgment; prove it or abandon it and while there is doubt give the animal the benefit of that doubt.

Yours faithfully,

J. Wakefield Rainey.

Bloemfontein Turf Club,
Bloemfontein, O.F.S.,
South Africa.
September 15th, 1938.

DISEASES OF ANIMALS ACTS, 1894 to 1937, and AGRICULTURE ACT of 1937 (PART IV)

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Sept., 1938	19	22	2	169	—	—	4	52	33
Corresponding period in									
1937	19	20	1	446	5	5	—	20	8
1936	17	18	1	69	5	5	4	40	37
1935	7	8	—	—	—	1	36	63	36
Total 1st January to 15th Sept., 1938	599	954	162	20,545	42	72	120	495	363
Corresponding period in									
1937	509	616	20	4,919	96	134	139	768	468
1936	329	389	5	448	91	233	167	1,396	995
1935	250	293	40	10,720	84	170	263	1,377	814

Note.—The figures for the current year are approximate only. § Excluding outbreaks in Army Horses.